Workplace bullying

A risk control perspective

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TABLE OF CONTENTS

1. Scientific Environment

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3. Abstract

Workplace bullying is an omnipresent phenomenon in contemporary workplaces (Nielsen, Matthiesen, & Einarsen, in press). With its negative consequences for victims, bystanders and the socio-economic fabric of organisations, it is an important psychological, sociological and economical hazard that needs to be firmly addressed. Several countries, such as Norway, Sweden, Finland, Belgium and France, have adopted laws explicitly banning it from workplaces. Some European countries have integrated this hazard into their general working environment acts as a result of applying European legislation that underlines the need for a risk assessment approach in the workplace (EEC, 1989). In this thesis, a risk control cycle (Cox, 1993) adapted from safety and health sciences (Karanika-Murray, Antoniou, Michaelides, & Cox, 2009) is introduced as an obvious strategy to systematically manage the problem of bullying at work.

Up until now, empirical data concerning the effectiveness of interventions in connection with bullying are a very early stage (Salin, 2009) or even inconclusive (Leka et al., 2008). Some of the key deficiencies are of a methodological nature. Furthermore, bullying is a somewhat intangible phenomenon, hence difficult to recognise and capture (Leka, Vartia, et al., 2008). This thesis aims to contribute to the feasibility of the risk control cycle by focusing on the very first step of risk control, which is the identification of the hazard and its antecedents in order to obtain a trustworthy benchmark or reference point. This is a condition sine qua non for the next steps in the control cycle, i.e. the assessment of risk, the design of control measures and the evaluation of intervention strategies to counteract workplace bullying. In particular, identifying the targets of severe bullying, assessing risk groups and mapping job characteristics associated with severe bullying are central to achieving this aim, and they are therefore the focus of this thesis, which consists of four studies.

The aim of the first study was to empirically explore the nature of workplace bullying. In particular, the objective of the study was to estimate the number of target groups of workplace bullying. The responses to the Negative Acts Questionnaire (Einarsen & Raknes, 1997) were therefore analysed in a large heterogeneous sample. A latent class cluster analysis (Magidson & Vermunt, 2004; Vermunt & Magidson, 2002) distinguished six different exposure groups that differed with respect to the nature and the frequency of the reported negative acts. In particular, it was found that approximately 3% of the sample was a target of severe bullying. The construct and criterion validity of these six groups emphasises the distinctiveness of the groups by showing significantly different scores for well-being and strain. Hence, bullying is not an either-or phenomenon, rather a hazard that comes in various shapes and forms. When designing interventions, the different clusters yield valuable clues as to what kind of specific approach an organisation can take.

After having established that latent class modelling is a valuable way of detecting target groups of bullying, the second study aimed to assess the risk groups in relation to workplace bullying. For this purpose, a multinomial regression model was applied to a large and heterogeneous sample of Flemish-speaking employees. Especially public servants, blue-collar workers and employees in the food industry displayed substantially higher risks of being targets of severe bullying. Employees between the ages of 35 and 54 and employees who work in manufacturing industry had also a higher risk of being a target of severe bullying. The likelihood of being a target of severe bullying did not differ between those on temporary and permanent contracts, nor between male and female workers. Nonetheless the necessity to identify the nature and prevalence of the phenomenon and its risk groups, the design of interventions may also benefit from a better understanding of the antecedents of workplace bullying. This may be accomplished by investigating the psychosocial working

environment or the design of work. The present thesis will therefore also investigate job characteristics that may be likely antecedents of bullying.

In exploring how job characteristics may act as antecedent factors of exposure to severe bullying, this thesis aimed to investigate whether job stress, and thus the experience of stress stemming from the design of jobs, may lead to reports of workplace bullying (Baillien, Neyens, De Witte, & De Cuyper, 2009). In study three, it was investigated whether job strain as conceived by the Job Demand Control Model (Karasek, 1979) can account for the likelihood of being severely bullied in a large and heterogeneous sample. In addition, endeavours were made to establish the level of experienced demand and control at which this likelihood increased significantly (Hoel, Zapf, & Cooper, 2002). The results underlined that experiencing strain is related to be being bullied. Moreover, the risk of being classified as a target of severe bullying is particularly high when demands are very high and control is low, and especially so when demands are very high and control is almost absent.

In order to complement the strain hypothesis, the last study aimed to identify job characteristics that may be associated with exposure to bullying. The Vitamin model's exhaustive list of environmental features was used to formulate the various research hypotheses (Warr, 1987, 1990). Participatory decision-making, role conflicts and environmental clarity acted as antecedent factors for exposure to bullying, based upon a binomial regression model in which several social demographical variables were controlled for. From a prevention perspective, when trying to control exposure to workplace bullying, it is of the utmost importance to design jobs in such a way that tasks and responsibilities are clear and not mutually contradictory, while offering opportunities for control.

All in all, these four studies contribute to the establishment of a trustworthy and necessary baseline for accomplishing the remaining steps in the risk control cycle. Different target groups have been identified, risk groups have been assessed and some important job characteristics have been documented that may be antecedent factors in relation to workplace bullying. The first paper also showed significant and substantial relationships between exposure to bullying and measures of health and well-being. This is important for the next steps of the control cycle because it demonstrates the urgency of managing the hazard. Subsequently, interventions can be designed, evaluated and monitored to achieve the goal of risk control, i.e. reducing, and if possible, banning bullying from our workplaces.

4. List of Publications

1. Notelaers, G., Einarsen, S., De Witte, H., & Vermunt, J. K. (2006). Measuring exposure to bullying at work: The validity and advantages of the latent class cluster approach. *Work and Stress, 20*(4), 288-301.

2. Notelaers, G., Baillien, E., Vermunt, J. K., De Witte, H., & Einarsen, S. (2010). Exploring risk groups and risk factors for Workplace Bullying. *Industrial Health*. Advance Publication Date, September 1, 2010.

3. Notelaers, G., Baillien, E., De Witte, H., Einarsen, S., & Vermunt, J. K. (submitted). Testing the strain hypothesis of the demand control model to explain severe bullying at work. *Economic and Industrial Democracy*.

4. Notelaers, G., De Witte, H., & Einarsen, S. (2010). Workplace bullying: a job characteristics approach. *European Journal of Work and Organizational Psychology*, 18(4), 487-504.

5. Bullying in the workplace, an occupational hazard

5.1 Defining workplace bullying

Bullying is a specific type of aggressive behaviour (Aquino & Thau, 2009) that is probably as old as humanity (Brodsky, 1976; Olweus, 1978). Studies show that, even among animals, a practice exists whereby 'weaker' members are ostracised for the survival of the group as a whole. Ostracism, i.e. ignoring and exclusion, is extensively documented (Williams, 2007). Therefore it should not really come as a surprise that a similar phenomenon exists among people. People gossip about, call names, tease, badger, humiliate and socially isolate others. Bullying is about systematic and long-term exposure to unwanted behaviours that are primarily of a psychological nature. Many of these acts or behaviours may be relatively common in working life and may not be perceived as a problem in themselves. However, when frequently and persistently directed towards somebody, they may become a serious source of stress (Zapf, 1999b).

Humans come into contact with bullying, be it as a perpetrator, a witness or a target. Pestering may occur already early in life. From kindergarten to primary and secondary school up to university, bullying is part of social life (Björkqvist, Österman, & Hjelt-Bäck, 1994; Olweus, 1978). If bullying happens in the playground and in the classroom, it should not come as a surprise that we also find it on the shop floor and in the boardroom. Research on bullying in both schools (Olweus, 1978) and working life (Nielsen, et al., in press) has revealed that bullying, while infrequent, is an omnipresent phenomenon.

In Scandinavia, the phenomenon was first labelled ‘mobbing’(Heinemann, 1972; Olweus, 1973). Leymann (1986) employed the term ‘mobbing’ to describe a phenomenon among adults that involves systematic exposure to subtle, less direct forms of aggression. According to Leymann, mobbing was to be conceived as contrasting to ‘bullying’, a term used to describe more physical forms of aggression. Nowadays, different labels have emerged to describe passive, indirect and psychological negative actions in workplaces : ‘harassment’ (Brodsky, 1976) , ‘abusive supervision’ (Tepper, 2000), ‘incivility’ (Blau & Andersson, 2005; Cortina, Magley, Williams, & Langhout, 2001), ‘emotional abuse’ (Keashly, 1998) and ‘victimisation’ (Aquino, 2000). However, in line with most researchers in this field, the present study employs the concept of workplace bullying (Einarsen, Hoel, Zapf, & Cooper, 2010).

In Table 1, an extensive overview of labels and definitions is presented to illustrate that workplace bullying has been both defined and redefined over the past 30 years. The different labels and somewhat divergent descriptions may indicate that there is still debate about the core issues or definitional elements of workplace bullying (Nielsen, 2009). Must episodes of bullying occur *frequently* to label receiving negative acts as bullying? *How long* one must be exposed to negative acts before it may be labelled bullying? Are *power differences* of all sorts important to describe negative acts between parties as bullying? Does exposure to negative acts have to be *intended* for it to be labelled workplace bullying? May negative behaviour in itself be labelled bullying or must *harm* be done before it may be categorised as such?

Table 1. Labels and definitions of workplace bullying: investigation of the common elements in scholarly definitions.

	Label	Definition
1	Harassment (Brodsky, 1976)	Repeated and persistent attempts by a person to torment, wear down, frustrate, or get a reaction from another person; it is treatment which persistently provokes pressures, frightens, intimidates or otherwise cause discomfort in another person. Typically, a victim of harassment and bullying is teased, and insulted and perceives that she or he has little resource to retaliation in kind.
2	Bullying (Olweus, 1993, 2010)	A person is bullied when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more other persons, and he or she has difficulty defending himself or herself.
3	Scape goating (Thylefors, 1987)	One or more persons who during a period of time are exposed to repeated, negative actions from one or more other individuals.
4	Mobbing (Matthiesen, Raknes, & Røkkum, 1989)	One or more person's repeated and enduring negative reactions and conducts targeted at one or more persons of their work group.
5	Health endangering leadership (Kile, 1990)	Continuous humiliating and harassing acts of long duration conducted by a superior and expressed overtly or covertly.
6	Mobbing/ psychological terror (Leymann, 1990b)	Hostile and unethical communication that is directed in a systematic way by one or more persons, mainly towards one targeted individual.
7	Bullying (Adams, 1992)	Bullying is offensive behaviour through vindictive, cruel, malicious or humiliating attempts to undermine an individual or group of employees. Bullying is also persistently negative attacks on personal and professional performance, typically unpredictable, irrational and often unfair. This abuse of power or position can cause such chronic stress and anxiety that the employees gradually lose belief in themselves, suffering physical ill-health and mental distress as a result.
8	Harassment (Vartia, 1993)	Situations where a person is exposed repeatedly and over time to negative actions on the part of one or more persons.
9	Harassment (Björkqvist, et al., 1994)	Repeated activities, with the aim of bringing mental (but sometimes also physical) pain, and directed towards one or more individual who, for one reason or another, are not able to defend themselves.
10	Bullying (Einarsen, Raknes, & Matthiesen, 1994)	The term bullying refers to situations where an employee is persistently picked on or humiliated by leaders or fellow co-workers. A person is bullying or harassed when he or she feels repeatedly subjected to negative acts in the workplace, acts that the victim may find it difficult to defend themselves against.
11	Ostracism (Williams & Sommer, 1997)	Ostracism, the act of ignoring and excluding individuals and groups by individuals and groups.
12	Victimization (Aquino, 2000)	The individual's *self-perception* of having been exposed, either *momentarily or repeatedly*, to aggressive actions emanating from one or more other persons.
13	Bulllying (Hoel & Cooper, 2000)	A situation where one or several individuals persistently over a period of time perceive themselves to be on the receiving end of negative actions from one or several persons, in a situation where the target of bullying has difficulty in defending him or herself against these actions. We will not refer to a one-off incident as bullying
14	Abusive supervison (Tepper, 2000)	Abusive supervision refers to the "sustained display of hostile verbal and non-verbal behaviours, excluding physical contact"
15	(Einarsen, 2000)	Bullying is defined as instances where an employee is repeatedly and over a period of time exposed to negative acts (i.e. constant abuse, offensive remarks or teasing, ridicule or social exclusion) from co-workers, supervisors, or

		subordinates
16	Bullying (Zapf & Gross, 2001)	Bullying occurs, if somebody is harassed, offended, socially excluded, or has to carry out humiliating tasks and if the person concerned is in an inferior position.
17	(Cowie, Naylor, Rivers, Smith, & Pereira, 2002)	Persistent exposure to negative acts at work, in the form of work related acts, personal acts or social isolation
18	Emotional abuse (Keashly & Jagatic, 2003)	Interactions between organisational members that are characterised by repeated hostile verbal and non verbal, often non physical behaviors directed at a persons(s) such that the target's sense of him / herself as a competent worker and person is negatively affected.
19	Bullying (Einarsen, Hoel, Zapf, & Cooper, 2003)	Bullying at work means harassing, offending, socially excluding someone or negatively affecting someone's work tasks. In order for the label bullying (or mobbing) to be applied to a particular activity, interaction or process it has to occur repeatedly and regularly (e.g. weekly) and over a period of time (e.g. six months). Bullying is an escalating process in the course of which the person confronted ends up in an inferior position and becomes the target of systematic negative social acts. A conflict cannot be called bullying if the incident is an isolated event or if two parties of approximately equal 'strength' are in conflict
20	Workplace Harassment or bullying (Varhama & Björkqvist, 2004)	Work harassment occurs when one or several individuals at the workplace are repeatedly exposed to insulting and infringing behaviour, which they, for one reason or another, cannot defend themselves against.. Work harassment is, by its very nature, degrading.
21	Workplace bullying, mobbing, and emotional abuse (Lutgen-Sandvik, 2006)	Workplace bullying, mobbing, and emotional abuse -essentially synonymous phenomena - are persistent, verbal, and nonverbal aggression at work that include personal attacks, social ostracism, and a multitude of other painful messages and hostile interactions.

A close inspection of Table 1 may help us to determine what scholars agree or do not agree about when defining workplace bullying. An overwhelming majority of scholars agree that bullying is about repeated negative acts: most of the listed definitions mention the repetitive nature of bullying. A small majority of definitions underlines the persistent and systematic nature of bullying. A similar number of definitions mention that a target has difficulties defending him or herself. A minority of definitions include the consequences of bullying as a criterion. Lastly, very few definitions refer to imbalance in power and the intent of the perpetrator as defining elements.

It seems reasonable to conclude that scholars largely agree that bullying is about recurring negative acts over a period of time. It is also plausible to say that, due to the repeated and prolonged nature of the behaviour, the target is or will become defenceless, and hence power differences become apparent. In addition, it may also be argued that the recurring and prolonged nature of this negative social transaction will render people unable to resist and

leave them powerless. Finally, their health and well-being will be seriously affected (cf. infra).

All in all, the definitions of bullying mentioned above allow workplace bullying to be conceived as repeated and persistent negative behaviour at work. In my opinion, repeated and persistent negative behaviour does imply a process. Bullying is often described as an escalating process, frequently triggered by a work-related conflict (Leymann, 1993; Zapf & Gross, 2001) in which the target becomes increasingly stigmatised and victimised and therefore unable to cope with the situation (see also Einarsen, 1999; Leymann, 1990b). Matthiesen, Raknes & Røkkum (1989) argue that bullying must be seen as a continuum from not at all exposed to high exposure. Others do not explicitly refer to a continuum but describe different stages in a process. According to Björkqvist (1992), the first phase of the bullying process is characterised by the targets being subjected to aggressive behaviour that is difficult to pin down because of its indirect, discrete and subtle nature. Later on, more direct aggressive acts occur (Björkqvist, 1992). The victims are now clearly isolated and avoided, and are humiliated in public by excessive criticism or by being made a laughing-stock. In the end, both physical and psychological violence may be used. Leymann (1993, 1996) describes the stages of the process from a more sociological-ethical perspective, pointing to the role and power of relevant actors in the organisation. Building upon Leymann (1990b) and Björkqvist (1992), Einarsen (1999) identifies four stages: aggressive behaviour, bullying, stigmatisation and severe trauma. In the first stage, the negative behaviour may be characterised as indirect aggression (Björkqvist, 1992), being subtle, devious and difficult to confront (Adams, 1992), and sometimes difficult to recognise even for the targets (Leymann, 1996). This phase, which may be very brief, tends to be followed by a stage in which more direct negative behaviour occurs, which involves that the target is ridiculed, humiliated and socially isolated (Leymann, 1990b, 1996). Here, the concept of workplace bullying applies since open, direct and frequent

negative behaviour is experienced (Björkqvist, 1992; Leymann, 1990b, 1996). In consequence, the target becomes stigmatised and finds it increasingly hard to defend him or herself (Einarsen, 1999). In this phase, social isolation becomes more apparent, with victims being cut off from social support (Leymann, 1986). In this situation, it is easy for the target to become helpless, unable to do anything resembling effective coping (Einarsen, et al., 2003). In this stage, targets are also often confronted with the fact that they have no actual role in the workplace, having little or even no meaningful work to do. As a result, severe trauma develops. Leymann (1993) refers to this stage as expulsion, whereby targets are forced out of the workplace – often with at least the passive approval of the management – whether through long term sickness absence or dismissal, or as a result of feeling brutally harassed out of the organisation.

In line with most of the definitions and scholarly descriptions of the process of workplace bullying, the studies in the present thesis address workplace bullying from a target perspective. While the target perspective is the dominant perspective in workplace bullying research, other perspectives may also provide valuable insight into the phenomenon, for example the bystander's and perpetrator's perspectives (Baillien, et al., 2009; Baumeister, Stillwell, & Wotman, 1990; Hauge, Skogstad, & Einarsen, 2009; Lutgen-Sandvik, 2003; Matthiesen & Einarsen, 2006; Rayner, Hoel, & Cooper, 2002; Zapf & Einarsen, 2003).

5.2 The cost of workplace bullying

5.2.1 Targets

Cross-sectional research has revealed an overwhelming body of health correlates associated with exposure to workplace bullying, indicating the detrimental nature of such exposure. Some scholars report a significant relationship between stress symptoms and workplace

bullying (Bilgel, Aytac, & Bayram, 2006; Kaukiainen et al., 2001). In particular, exposure to bullying has been related to an increased level of worrying (Hubert, Furda, & Steensma, 2001; Notelaers & De Witte, 2003), to a higher recovery need (Notelaers & De Witte, 2003), to decreased sleep quality (Hansen et al., 2006; Notelaers & De Witte, 2003) and to symptoms of burn-out (Bowling & Beehr, 2006).

A large body of research has investigated complaints that are of a more psychological nature. Empirical research repeatedly reports that exposure to bullying is related to anxiety (Baruch, 2005; Bilgel, et al., 2006; Hansen, et al., 2006; Kaukiainen, et al., 2001; Leymann & Gustafsson, 1996). Moreover, many researchers have found a significant association between exposure to workplace bullying and depression (Adoric & Kvartuc, 2007; Bilgel, et al., 2006; Bowling & Beehr, 2006; Hansen, et al., 2006; Leymann & Gustafsson, 1996).

There is also substantial agreement that targets of bullying show severe psychiatric symptoms (Matthiesen & Einarsen, 2004). Even though severe exposure to bullying does not meet the official criteria of the DSM IV that would qualify these symptoms as a post traumatic stress disorder (PTSD) (cf. discussion in:Einarsen & Mikkelsen, 2003), clinical studies have empirically shown that targets of workplace bullying do experience typical symptoms of PTSD (Balducci, Alfano, & Fraccaroli, 2009; Leymann & Gustafsson, 1996; Matthiesen & Einarsen, 2004; Mikkelsen & Einarsen, 2002). However, in contrast to 'regular' sufferers from PTSD, many targets have to face their trauma day in and day out. At work, some are even 'forced' to relive their trauma on a daily basis.

Several scholars have also reported suicidal ideation (Balducci, et al., 2009; Brousse et al., 2008; Leymann & Gustafsson, 1996) among targets of workplace bullying. Without making any claims as to the extent to which bullying may lead to suicide, suicides in many countries

have been associated with workplace bullying in the local press. Journalists have reported that targets have left farewell notes explaining their motives, specifically referring to being bullied at work. In Belgium, for example, a civil judge condemned the colleagues of a postman who killed himself in 2000 by jumping in front of a train. Recently, a Belgian public prosecutor wanted to bring some employees of the maintenance service of the city of Gent to court after a 53-year-old took his own life, leaving a letter pointing to difficult working conditions.

Much empirical research has been published linking exposure to workplace bullying to both health complaints (Hubert, et al., 2001; Kaukiainen, et al., 2001; Knorz & Zapf, 1996) and psychosomatic complaints (Kivimäki et al., 2003; Knorz & Zapf, 1996; Quine, 2003). In an Italian study, spinal column problems and gastritis occur more often with increasing levels of exposure to bullying (Balducci et al., 2010). A Finnish study reveals that exposure to bullying at work is related to reports of chronic disease and to increased sickness absence (Kivimäki, Elovainio, & Vahtera, 2000). In Denmark, respondents' physiological stress responses were measured using saliva samples (Hansen, et al., 2006). Among bullied respondents, the concentration of cortisol in their saliva was lower on awakening, indicating that bullied persons start the day with less energy. Moreover, the concentration of cortisol was similar to that of people suffering from post traumatic stress disorder and chronic fatigue. Recently, it was shown that, on average, fatigue at the end of the working day started two hours earlier among targets (Hansen, Hogh, & Persson, 2010).

In short, the list of symptoms related to distress, psychological, psychosomatic and physical health complaints accompanying exposure to severe workplace bullying is long and extensive. However, the use of cross-sectional designs means that the relations established are correlational. It is difficult, therefore, to claim that bullying causes these outcomes. There are,

however, some studies that overcome the shortcomings associated with cross-sectional designs. In a Finnish cohort study, prolonged bullying was associated with a 60% increase in cardiovascular disease after having adjusted for overweight (Kivimäki, et al., 2003). Niedhammer and her French colleagues (2006) report that those with past exposure to bullying were two times more likely to report depressive symptoms (OR=2) when recent exposure to bullying was controlled for. Finally, targets of workplace bullying reported persistent somatic symptoms such as weight gain, appetite disorders, migraines and muscular pain in a 12-month follow-up study (Brousse, et al., 2008). Although the proportion of patients with severe symptoms of anxiety decreased from 83% to 60%, the large majority still displayed these symptoms after a year. In addition, after one year, the proportion of patients displaying symptoms of depression did not change (40%). It was also noteworthy that, after one year, 52% of the patients still reported a deep fear of going to their previous workplace, even though they were on long-term sick leave or had their contract terminated on medical grounds (Brousse, et al., 2008).

In sum, there is substantial evidence from cross-sectional, medico-biological and longitudinal studies that exposure to bullying at work leads to severe psychological, psychosomatic and/or health complaints. From a victim's perspective, it is therefore necessary to outlaw or at least manage this occupational hazard.

5.2.2 Bystanders

Bullying is not simply a private social exchange process between a target and a perpetrator. It unfolds in the workplace, a social setting where there are non-involved observers as well as potential collaborators. Even though workplace bullying may be discrete and subtle in its early phases (Björkqvist, 1992), it does not remain totally unnoticed by 'non-involved' others. Keashly and Neuman (2008) found that 41% of the participants in a study among faculty

members confirmed that they witnessed workplace bullying. Across three samples, Vartia (2003) found that the percentage of participants who observed bullying varied between 8.7% and 35.4%. The proportion of witnesses can be very high: in a university sample, the proportion of witnesses was 55% (Haffner, 2009). In a study among healthcare professionals, 68% of the participants had observed bullying in the last two years (Tehrani, 2004).

Bystanders or witnesses do not just observe others being bullied. There seem to be both explicit and implicit costs associated with being an observer of bullying (Heames & Harvey, 2006). Bullying has in fact been shown to lead to similar, albeit weaker, negative effects on bystanders in cross-sectional designs (Hansen, et al., 2006; Hoel & Cooper, 2000; Lutgen-Sandvik, Tracy, & Alberts, 2007). Witnesses of workplace bullying report a poorer social climate and a less favourable managerial climate (Vartia, 2003). Bystanders have been found to report higher levels of feelings of stress, mental distress and lower job satisfaction than respondents who were neither observers nor targets (Hansen, et al., 2006; Hubert, et al., 2001; Vartia, 2003). In a sample from a municipality, observers of bullying used twice the amount of sleep-inducing drugs and sedatives as their colleagues (Vartia, 2001). In three different samples, witnesses reported significantly lowered general health compared with participants who neither witnessed nor experienced incidents of workplace bullying (Mayhew et al., 2004).

In an interview study using an experimental setting in which participants were asked to recall either a situation in which they were bullied or a situation in which they had witnessed somebody being bullied, the level of reported psychological distress was similar for both witnesses and targets (Janson & Hazler, 2004). Moreover, the level of psychological distress among these witnesses was similar to or higher than among emergency workers, police officers and schizophrenic individuals having a psychotic breakdown (Janson & Hazler,

2004). These witnesses' scores on a measure for establishing Post Traumatic Stress Disorder exceeded the cut-off point that clinicians associate with risk of posttraumatic illness following life-threatening disasters (Janson & Hazler, 2004). Finally, skin conductance and heart rate in beats per minutes did not differ between witnesses and targets, which suggests that interviewees still experienced elevated emotional arousal when recalling past episodes of witnessing bullying (Janson & Hazler, 2004).

As mentioned earlier, workplace bullying is not a simple private exchange process that follows a simple sender-receiver pattern. Many more people are involved or affected. Hence, in a dysfunctional organisational climate in which workplace bullying thrives, the negative consequences are far further reaching and more pervasive than earlier imagined (Heames & Harvey, 2006). The need to prevent workplace bullying may thus be of crucial importance to productivity, loyalty to the institution and to the reputational capital of organisations (Mayhew, et al., 2004).

5.2.3 Organisation

Many studies have shown that exposure to workplace bullying is associated with lowered job satisfaction (Baruch, 2005; Bilgel, et al., 2006; Hauge, Skogstad, & Einarsen, 2010a; Hubert, et al., 2001; Quine, 2003), an association recently confirmed in a longitudinal study (Rodríguez-Muñoz, Baillien, De Witte, Moreno-Jimenez, & Pastor, 2009). Different cross-sectional studies have reported that exposure to workplace bullying is related to lower levels of organisational commitment (Bowling & Beehr, 2006; Hubert, et al., 2001). Studies have also shown that exposure to bullying is associated with a higher turnover intention (Baruch, 2005; Hauge, et al., 2010a; Lutgen-Sandvik, 2006). In a UK survey, a quarter of those previously bullied actually left their jobs (Rayner, 1997b). In addition, 20% of bystanders,

who outnumbered the targets (cf. supra), chose to leave their jobs as a consequence of their encounters with bullying (Rayner, et al., 2002).

In a sample from a Norwegian trade union, 27% agreed that workplace bullying reduced their efficiency (Einarsen, et al., 1994). In a nationwide British study, 33% of respondents claimed that this was the case (Hoel & Cooper, 2000). Recently, it was shown that exposure to bullying and performance measures are moderately related (Baruch, 2005; Einarsen, Hoel, & Notelaers, 2009). In a meta study, exposure to bullying was found to be related to a lower level of organisational citizenship behaviours and higher levels of counterproductive work behaviours (Bowling & Beehr, 2006).

Researchers have tried to calculate the cost of workplace bullying: Hoel, Sparks & Cooper (Unknown), for instance, estimated the minimum total cost of workplace bullying in the UK to be GBP 1.88 billion. Based on a case study in an organisation, the minimum total cost for one case was estimated to be approximately GBP 28,000 (Hoel, Einarsen, & Cooper, 2003). Between 1993 and 2002, the cost of 24 claims in Australia amounted to AUD 736,513 (Knott, Dollard, & Winefield, 2004). Finally, in a Finnish hospital sample (Kivimäki, et al., 2000), it was calculated that bullying accounted for 2% of total sickness absence, which translates to an annual cost of EUR 150,000 (Hoel, Sheehan, Cooper, & Einarsen, 2010). Such a sum approximates the cost of employing three or four full-time equivalents in this hospital alone.

It may be concluded, therefore, that the cost to organisations of workplace bullying is considerable. Not only the targets, but also bystanders are affected. In addition, there are strong indications that the organisations in which bullying takes place may suffer as a consequence of bullying: directly, since the costs of conciliation relating to both consultancy from external experts and the working hours spent on such a process may increase (Hoel &

Einarsen, 2010), and indirectly, as bad publicity in the mass media may affect an organisation's short-term revenues and long-term reputation. Society may also have to pay a price because of the expenses resulting from people being absent from work due to sickness. Especially in European countries, which have strong and relatively generous national insurance systems, it is society that has to foot the bill. With all these types of costs in mind, it is not surprising that some countries like Norway (1994), Sweden (1993), Finland (2003), Belgium (2002) and France (2002) have passed laws aimed at combating bullying (Yamada, 2010). In the case of Finland, the employer is generally required by law to take action in cases of 'harassment and other inappropriate treatment' (Salin, 2010). However, given the costs described above, this is a minimum. In analogy with occupational stress, we may need to take a risk control approach to introduce a system that enables workplace bullying to be systematically reduced or eradicated.

5.3 Preventing workplace bullying: a risk control strategy

All in all, there are plenty of reasons to start managing this hazard in a more systematic way than has been the case so far (Vartia & Leka, 2010). The European Directive 89/391 (EEC, 1989) on the introduction of measures to encourage improvements in the safety and health of workers at work, lists various obligations of employers to guarantee a safe workplace. The Directive states in Article 9 that the employer shall be in possession of an assessment of the risks to safety and health at work, including the groups of workers exposed to the risks. EU and EEA member states have implemented this directive in their legal systems, thus enshrining in law the prevention of occupational risks to health and safety in workplaces. Nowadays, modern health and safety practice is carried out within a well-defined framework known as risk management or risk control, of which risk assessment is an essential component (Rampal & Sadhra, 1999). Over the years, the risk control approach has been successfully

applied to a large range of physical and chemical hazards. It has gradually evolved into an approach that is readily understood and endorsed by occupational professionals throughout the world (Spurgeon, 2003).

In the 1990s, Norway and many European countries broadened the domain of application of their working environment acts to include stress at work and its underlying psychosocial factors. Cox and colleagues (1993; 1993; 1995; 2000) proposed a risk control approach in order to systematically reduce stress at work. Occupational health professionals have embraced this approach, underlining that there is also a need for structured risk assessment for psychosocial issues (Spurgeon, 2003). Moreover, it was included in the guidelines of the UK Health and Safety Executive (HSE, 2001), and the approach is strongly advocated in the fact sheets of the European Agency for Safety and Health. In principle, Norwegian organisations are obliged by law to implement such a system (Einarsen & Pedersen, 2007).
Given the tremendous costs related to exposure to workplace bullying, I would like a similar strategy to be used in order to counteract bullying at work.

5.3.1 The risk control cycle

A basic tenet of the approach is that risk in the workplace cannot be eliminated. It may be controlled, however. Therefore, the aim of risk management is to minimise the risk of harm to a level that is 'acceptable' to the people directly involved (Spurgeon, 2003). An important underlying assumption of the risk control approach is that the hazards emanate from the workplace (Spurgeon, 2003). Ultimate responsibility for controlling exposure to the hazard, i.e. workplace bullying, therefore rests with the employer.

The proposed risk control cycle that was originally designed to control tangible hazards, consists of six steps: a) identification of hazards; b) assessment of associated risk; c)

implementation of appropriate control strategies; d) monitoring of the effectiveness of control strategies; e) reassessment of hazard/risk, and f) a review of the information needs and training needs of workers exposed to hazards (Cox, 1993; Cox & Griffiths, 1995; Cox, et al., 2000).

The control cycle begins with problem recognition and hazard identification based on a thorough analysis of the work situation. The analysis must take into consideration the tasks and people involved, as well as procedures and the organisation of work, and, finally, the working environment and relevant technology. Hence, proper identification of the hazard and those most likely to be affected is an important first step. However, hazard identification is not only about identifying each separate hazard, it also involves analysing how the hazard arises. In identifying the hazard, the first step in the risk control cycle, we must not only determine the extent to which the workforce is exposed to risk, but also identify risk groups and risk factors. With respect to workplace bullying, it is in the first place necessary to determine the types of negative behaviour that may constitute bullying, an issue already covered in much research. Scales such as the negative acts questionnaire (NAQ) have been developed for this purpose (Einarsen, et al., 2009). After having identified bullying in a reliable way, the likelihood of members of the organisation being bullied must be calculated in order to identify risk groups. In addition, antecedents of workplace bullying must be assessed. They may help us to understand why workplace bullying arises and may be useful in future interventions. In line with contemporary conceptual models of workplace bullying (Baillien, et al., 2009; Einarsen, 1996), the present thesis will investigate which job characteristics may function as antecedent factors of workplace bullying.

After the identification of workplace bullying, its antecedents and the employees involved, the second step of the control cycle assesses the associated risk. Risk assessment tries to answer

questions relating to the nature of hazards, the nature and magnitude of the harm and the extent of the risk and risk groups (Schrader-Frechette, 1998). Applied to workplace bullying, risk assessment should provide information on the nature and severity of workplace bullying, the way the latter may affect the health of those exposed and the impact on the organisation itself (Leka, Cox, & Zwetsloot, 2008). Hence, the risk assessment should both offer an explanation for and quantify the hazard-harm relationship, thus providing a basis for the logical design of control strategies (Cox & Cox, 1993). As shown above, a wide range of studies have documented strong adverse effects on the health of targets of bullying.

The next step in the control cycle is the development and implementation of appropriate control strategies or measures in order to minimise the risk of harm. Here, the hierarchy of prevention is of the utmost importance, and primary measures are preferred over secondary and tertiary measures. Primary control measures are designed to eliminate the sources of workplace bullying, whereas secondary measures are aimed at reducing the level of workplace bullying to a minimum. Tertiary prevention is about minimising the effect of workplace bullying once it has occurred. The assumption that the working environment is responsible for the occurrence of the hazard, i.e. workplace bullying, implies that primary and secondary prevention must focus on changing antecedent factors in the working environment in order to reduce the possibility of the hazard arising (Spurgeon, 2003). Hence, how jobs can be (re)designed in such a way that bullying is less likely to arise may be a central question in relation to achieving this goal. Tertiary prevention is in line with this philosophy, as it aims to minimise the negative effects once bullying has occurred. However, because of the detrimental effects of workplace bullying on members of an organisation, we also need to embrace remediation and rehabilitation in order to keep the members of the organisation in the workplace (Spurgeon, 2003).

The fourth step initiates the monitoring system which underpins the effectiveness of any specific measure undertaken. It consists of mechanisms whereby remedial actions which were formulated, instituted and maintained, are monitored. This enables the early identification of any shortcomings in the intervention measures. Moreover, it assures that control and prevention are not a single event but an ongoing process subject to review and modification as new circumstances arise (Spurgeon, 2003). This means that the hazards, the antecedents and the consequences are measured again to investigate and document the effects of the chosen intervention. Hence, the prevalence, the groups at risk and the antecedent factors should be re-established. Afterwards, the effectiveness of the control strategies can be determined (Cox, et al., 2000) in this step of the control cycle.

The fourth step may be very closely related to the fifth step in the control cycle, where the risks should be reassessed. After investigating whether workplace bullying and its risk factors are addressed by the intervention, the hazard-harm relationship may be re-evaluated. In addition to the re-evaluation of the latter, both the adequacy of the procedures and the process in place must be examined (Spurgeon, 2003). Here, the success or failure of the implemented intervention may 'finally' be determined. This is the last step of a recursive system in the risk control cycle that is designed to ensure continuous improvement in occupational health, i.e. to reduce workplace bullying.

Once the recursive system of the five previous steps has minimised the risk, the remaining or residual risk needs to be addressed in the last step of the risk control cycle. The information needs and training needs of workers must be reviewed and addressed to keep bullying away from the workplace.

5.3.2 Assessing workplace bullying

The control cycle is a systematic and comprehensive approach to assessing risks in the working environment that satisfies current statutory requirements (Cox, et al., 2000). It encourages a dynamic policy that is responsive to the problem of workplace bullying and enables knowledge-based growth (Spurgeon, 2003). Two steps are essential before designing interventions: firstly, the identification of the hazard, risk groups and antecedents and, secondly, the assessment of the associated risk. Since the assessment of the risk depends on the quality of the identification of the hazard, it is self-evident that the quality of the control cycle is entirely dependent upon the first step. However, it has been claimed that the field of workplace bullying focuses more on identifying substantive issues than on methodological issues, thereby hampering our ability to measure it correctly (Keashly & Harvey, 2005). Therefore the present thesis will elaborate on some methodological issues.

The control cycle may start in many ways. A starting point could be to initiate focus groups tasked with establishing a risk matrix in which exposure levels and severity of exposure are agreed upon and prioritised in consensus (for an example: Cox & Cox, 1993). Another way of starting the control cycle could be an analysis of organisational records, which may reveal indications or symptoms of bullying. For instance, company records of sickness absence and staff turnover may be re-examined in light of complaints about workplace bullying (Spurgeon, 2003). In fact, there are various ways of collecting information that may be used to initiate the monitoring of the psychosocial hazards (Bakhuys Roozenboom, Houtman, & van den Bossche, 2008). The starting point for the identification of hazards, the level of exposure and identification of the risk groups is often survey research, because a survey offers participants anonymity or at least confidentiality, which may defuse the sensitivity and the difficulties surrounding workplace bullying (Rayner, 1997a).

Unlike the aforementioned methods, survey research offers an opportunity to ensure the validity of the measure of a psychosocial hazard, i.e. exposure to workplace bullying. It also enables the trustworthy quantification of exposure to workplace bullying, which may be used as a reference for evaluating interventions. In addition, many employers tend to prefer and to be more convinced by numerical data as a basis for interventions (Spurgeon, 2003). Therefore, the present study is based on a survey design aimed at contributing to better estimates of the prevalence of and risk groups and risk factors relating to workplace bullying.

A reliable baseline is the cornerstone for successful implementation of a risk control cycle. Without sound identification of the hazard, the groups at risk and the factors contributing to the presence of the hazard, the following steps in the control cycle cannot be executed, making it difficult to attain the goal of such a control cycle, i.e. to systematically counteract workplace bullying. If exposure to bullying is not adequately quantified, it is difficult to indentify the groups at risk and to investigate possible antecedent factors. Furthermore, establishing the hazard-harm relationship may be compromised and well-founded interventions cannot be developed. Finally, it will be impossible to evaluate the effectiveness of interventions and to reassess the resources needed to further reduce the risk of being bullied (see also: Spurgeon, 2003).

The aim of this thesis is therefore to contribute to the basis of the risk control cycle. In particular, I aim to identify this hazard, which is characterised by its repetitive nature, its risk groups and its work-related antecedents. In the next section, an overview is provided of measurement and classification strategies in relation to targets of bullying. Afterwards, the current state of affairs regarding the investigation of risk groups in workplace bullying will be described. Finally, some risk factors related to stress at work are introduced. In particular, job

characteristics that have been related to job stress will be addressed as possible antecedent factors for the occurrence of workplace bullying.

5.4 Measuring workplace bullying and identifying targets

In general, two approaches are commonly used to measure exposure to workplace bullying through surveys: a self-labelling approach and a behavioural experience approach (Zapf, Einarsen, Hoel, & Vartia, 2003).

In the self-labelling approach, respondents are invited to indicate how often during the last six months they have been subjected to bullying. This is often based on a given definition of workplace bullying. Targets are then differentiated from non-targets by employing a cut-off criterion, e.g. experiencing workplace bullying at least weekly (Leymann, 1990b).
In the behavioural experience approach, respondents are invited to indicate how often they experienced each of a range of specific negatives acts listed in a questionnaire, generally within the time frame of the last six months. Targets are then differentiated from non-targets by employing a similar operational cut-off criterion (Leymann, 1990a, 1990b). Most often, respondents are labelled as targets when they have experienced at least one negative act or bullying behaviour on a weekly basis during the last six months (Nielsen, 2009).

A clear advantage of the self-labelling method is that it does not take much space in a questionnaire, while it is also easy to administer (Nielsen, 2009). Furthermore, as the method explicitly asks respondents whether they are exposed to bullying, the face validity of the method is convincing. Despite these strengths, the self-labelling method is not without flaws and difficulties (Nielsen, Notelaers, & Einarsen, 2010). The self-labelling method is a subjective approach in which personality, emotional factors, cognitive factors and

misperceptions may figure as potential biases (Felblinger, 2008; Lewis, 2004, 2008; Salin, 2003b). In addition, the self-labelling approach entails some difficulties for the risk control cycle. Firstly, the identification of targets may be hampered. The approach relies entirely on a single item operationalisation of workplace bullying, of which the reliability cannot be simply assessed using a cross-sectional design. The thresholds or cut-off points for distinguishing targets from non-targets (cf. Solberg & Olweus, 2003) are quite arbitrary. Secondly, the approach does not offer insight into the nature of the behaviours involved that may be valuable in designing interventions targeting the 'potential' different stages of bullying (see victims reports in:Adams, 1992; Baillien, et al., 2009; Brodsky, 1976; Leymann, 1993; Liefooghe & Davey, 2003). Thirdly, this approach results in a highly skewed distribution, which may hamper the exploration of its correlates (steps 1 and 2). Finally, the approach makes it difficult to capture changes over time, a necessity when monitoring hazards and evaluating interventions (steps 4 and 5).

In the tradition of the behavioural experience method, in which a list of typical negative social acts are presented to the respondent without explicitly mentioning workplace bullying, very many inventories have been developed to measure workplace bullying and assess the behaviours involved. Nielsen et al. (2010) provide an overview of 27 different inventories that have been used to assess bullying or phenomena similar to workplace bullying. Some of them have only been used once, whereas others, such as the Leymann Inventory of Psychological Terror (LIPT: Leymann, 1990a), the Negative Acts Questionnaire (NAQ/NAQ-R: Einarsen & Hoel, 2001; Einarsen, et al., 2009; Einarsen & Raknes, 1997) and the Workplace Aggression Research Questionnaire (Harvey & Keashly, 2003), have been used in many studies. However, the NAQ seems to be the most utilised measurement instrument (Nielsen, et al., in press), and its psychometric quality has been thoroughly investigated (Einarsen, et al., 2009). Using multiple item measurement instruments such as the NAQ has the advantage that their

psychometric quality can be assessed. Multiple questions from somewhat different but overlapping domains (e.g. work related, person oriented and social isolation: Einarsen & Raknes, 1997) enable the measurement of different forms of bullying in the work environment. Moreover, when a response scale is offered to the respondents to enable them to express how often they have experienced different negative acts, the frequency, and thereby the repeated nature of the experience(s), can be statistically modelled. As a result, insight may be obtained into the different forms bullying may take.

As in the self-labelling approach, an operational criterion method has been used to distinguish targets from non-targets, thereby providing the risk control cycle with estimates of the size of the problem. However, over the years, different cut-off criteria have been proposed: exposure to one negative act (Leymann, 1990b), two negative acts (Mikkelsen & Einarsen, 2001) and three or four acts (Agervold, 2007) on a weekly basis for at least six months. These different cut-off points on the NAQ-scales may underline scholars' preoccupation with adequately capturing the recurring and prolonged nature of workplace bullying. These cut-off scores pose a challenge, however, in relation to identifying the size and the nature of the problem, as the estimates diverge greatly and may cover different experiences (Notelaers, Vermunt, De Witte, & van Veldhoven, 2003a). Moreover, the decision that targets shall only be defined as respondents who are subjected to a specific number of behaviours with a given frequency (e.g. on weekly basis) is debatable for a number of reasons. First of all, the operational criteria used are more or less arbitrary choices that reduce the (escalating) process of bullying to a strictly 'either-or' phenomenon. Secondly, by using operational criteria, the number of reported targets may actually be a function of the number of items included in the inventory: the more behaviours included, the more targets can be identified. Thirdly, employees exposed to a wide range of specific behaviours, each occurring only now and then in the last six months, are not regarded as targets of bullying even though they are regularly exposed to

much negative behaviour over a long period of time. Fourthly, the operational criterion approach relies on the assumption that all kinds of negative acts have similar item properties. It has been shown that this is not the case. For instance, research has shown that not every negative act is equally detrimental (Hoel, Faragher, & Cooper, 2004). Furthermore, it has been argued that not every negative act is an equal measure of workplace bullying (Agervold, 2007; Lewis, 2008). It is clear that these limitations hamper both the identification of workplace bullying and the assessment of the prevalence of exposure to bullying.

The aim of the present thesis is to contribute to the valid identification of targets of workplace bullying. In particular, the present thesis aims to propose an alternative approach to identifying targets of bullying based upon their behavioural experience. Therefore, the above-mentioned issues should be addressed using such an alternative method

5.5 Determining risk groups and antecedent factors

Risk identification does not stop with measuring the hazard (e.g. exposure to workplace bullying). After the risk has been identified, risk groups and risk factors associated with the occurrence of the hazard need to be addressed in order to help control and prevent the problem at hand: exposure to workplace bullying.

5.5.1 Identifying risk groups in relation to workplace bullying

Earlier studies have diverged in their description of risk groups. With respect to gender, many studies have revealed more female than male targets. Yet, Zapf and colleagues (2003) concluded that only four out of 15 studies report more female targets after having compared the gender distribution among targets with the overall gender distribution in these 15 samples.

Findings are also inconclusive with regard to the age of employees. Whereas Leymann (Leymann, 1996) detected no difference between various age groups, other empirical research revealed a higher vulnerability to victimisation among both older employees (Einarsen & Skogstad, 1996; Painter, 1991) and young employees (Einarsen & Raknes, 1997; Paoli, 1997). Concerning the latter, it may also be possible that being a newcomer is a risk, as these employees may be put to the test before becoming accepted as member of the (in)formal group. Thus, this so-called 'rite of passage' or 'baptismal process' (Archer, 1999; Brodsky, 1976; Einarsen, Matthiesen, & Hauge, 2008) may be perceived as bullying when it is prolonged and involves some kind of psychological mistreatment.

Empirical studies reporting occupational status as a risk factor in relation to bullying are scarce and inconsistent in their findings (Aquino & Thau, 2009). Whereas Salin (2001) found less bullying at higher levels of an organisation, others (Hoel, Cooper, & Faragher, 2001) found similar estimates of bullying amongst workers, supervisors and middle and senior management, with female managers being particularly at risk. White-collar employees were found to be somewhat more exposed than lower-ranking white-collar employees and blue-collar workers (Piirainen et al., 2003).

In addition, the type of employment contract has been portrayed as a risk factor (Hoel & Cooper, 2000). In particular, temporary employees may be targeted more since they can be perceived as a potential source of disturbance by the permanent workforce, as they interfere with the social cohesion of the work group. Furthermore, they may be more vulnerable as they are easier to dismiss than permanent employees (Baron & Neuman, 1996).

It is still an open question which industry has the highest risk of bullying. While Zapf (1999a) reported high rates of bullying in public administration, other studies have reported a high

prevalence in health care (Mikkelsen & Einarsen, 2001; Niedl, 1995; Piirainen et al., 2000; Vartia, 1993). In some studies, high levels of workplace bullying have also been reported in the educational sector (Leymann, 1996; Zapf, 1999a), whereas others have shown teachers to be a low risk group (Mikkelsen & Einarsen, 2001). In the private sector, manufacturing industries (Einarsen & Skogstad, 1996; Hubert & van Veldhoven, 2001) seem to account for more targets than other private sector industries. In the service sector, the most frequent exposure to bullying seems to occur in trade and commerce (Einarsen & Skogstad, 1996) as well as in the hotel and restaurant industry (Mathisen, Einarsen, & Mykletun, 2008).

While of value in highlighting possible risk groups in relation to bullying, the results of these studies remain rather ambiguous, often contradicting each other. Different countries, different cultures, different labour markets and different economies may account for the reported findings. However, there are several other possible explanations for the ambiguity of the findings. Firstly, in some studies, self-selected samples of only highly exposed long-term targets of bullying are used to determine risk groups and risk sectors (Leymann & Gustafsson, 1996; Zapf, Knorz, & Kulla, 1996). Hence, these studies must be interpreted with care (Hoel, et al., 2002; Nielsen & Einarsen, 2008). For this reason, Zapf & Einarsen (2001) urge future researchers to focus on and collect data from working people in general. Secondly, the prevalence of targets of workplace bullying is low, ranging from 1% to 10%. As a result, very large samples are required if they are to contain a reasonable number of targets (Nielsen & Einarsen, 2008). In the most recently available overview (Zapf, et al., 2003), only five out of 30 studies had a large sample size. Thirdly, most results stem from samples of very homogeneous populations, possibly enhancing the internal validity but severely hampering the external validity or generalisability of these findings. Finally, a large majority of the studies reported bivariate results only. Hence, they capitalise on chance to report significant

differences, as demonstrated by an American study that focused on the identification of risk groups in relation to workplace aggression (Schat, Frone, & Kelloway, 2006).

A trustworthy identification of risk groups is a necessary condition for designing interventions, both at the societal and the organisational level. In addition to a measurement or modelling strategy that assesses the repetitive nature of workplace bullying, a large representative sample would be an ideal starting point for the identification of such risk groups. Next, these risk groups should be assessed simultaneously in order to obtain more accurate estimates of the size of the risk and to prevent having to rely on chance. The present thesis would like to contribute to this aim.

5.5.2 Identifying antedecents of workplace bullying

In the past, several scholars have developed conceptual models that may explain the occurrence of workplace bullying. Zapf (1999a,b) argues that there are organisational and social factors that may explain bullying, in addition to its being related to personality characteristics of the perpetrator and of the target. Based on interviews with targets, Leymann (1993) suggested four factors: deficiencies in work design; deficiencies in leadership behaviour; the victim being in a socially exposed position; and low moral standards in the department. Einarsen (1996, 2000) developed a theoretical framework that takes into account situational, contextual and personality factors as antecedents of workplace bullying. In addition he included the behaviour of both perpetrators and targets and their emotional and behavioural reactions, and underlined that organisational and individual factors may act as moderators. Based upon interview studies, Baillien and colleagues (2009) integrate the three previous models in a three-way model that presents three ways of how bullying may evolve. In short, they argue that bullying originates from frustration, conflicts and characteristics of the organisation.

Such generic models are highly valuable for our understanding of why workplace bullying evolves and is sustained in the workplace. However, as they are not really parsimonious, they are also difficult to test since many factors at many different levels involving many actors must be taken into account. Most research has focused on exploring specific paths or hypotheses in such models. As a result, the last two decades of empirical research have provided a seemingly never-ending list of correlates between different job characteristics and bullying (see also Table 2).

Table 2. Job characteristics as potential antecedents of workplace bullying.

Job characteristic	References
High workload	(Baillien, Rodríguez-Muñoz, De Witte, & Notelaers, 2010; Einarsen, 2000; Einarsen, et al., 1994; Hubert, et al., 2001; Leymann, 1996; Notelaers & De Witte, 2003; Tuckey, Dollard, Hosking, & Winefield, 2009; van den Bossche, de Jonge, & Hamers, 2001; Zapf, 1999a; Zapf & Gross, 2001)
Low work control or low decision latitude	(Baillien, Rodríguez-Muñoz, et al., 2010; Einarsen, et al., 1994; Hubert, et al., 2001; Leymann, 1996; Notelaers & De Witte, 2003; Tuckey, et al., 2009; van den Bossche, et al., 2001; Vartia, 1996; Zapf, 1999a; Zapf & Gross, 2001)
Lack of social support from colleagues and superiors	(Einarsen, 2000; Opdebeeck, Pelemans, Van Meerbeeck, & Bruynooghe, 2002; Tuckey, et al., 2009; Zapf, 1999a; Zapf & Gross, 2001)
Role conflicts	(Einarsen, et al., 1994; Hauge, Skogstad, & Einarsen, 2007; Neyens, Baillien, De Witte, & Notelaers, 2007; Notelaers & De Witte, 2003; Vartia, 1996)
High degree of role ambiguity or lack of clarity	(Einarsen, et al., 1994; Neyens, et al., 2007; Notelaers & De Witte, 2003; Opdebeeck, et al., 2002; Zapf, 1999a)
Monotomonous / low challenging work	(Appelberg, Romanov, Honkasalo, & Koskenvuo, 1991; Einarsen, et al., 1994; Notelaers & De Witte, 2003)
Change at work	(Baillien & De Witte, 2009b; Baron & Neuman, 1996; McCarthy, 1996; Notelaers & De Witte, 2003; Salin, 2003a; Vartia, 1996).
Job insecurity	(Baillien & De Witte, 2009b; Notelaers & De Witte, 2003)
Information (Poor information flow; Lack of mutual discussion; Lack of communication and Lack of feedback)	(Einarsen, et al., 1994; Notelaers & De Witte, 2003; Vartia, 1996)

The list is long, even impressive, yet, most of these studies only analyse a (very) small selection of potential job characteristics (Baillien, Neyens, & De Witte, 2008). Often, a theoretical rationale is also absent (Aquino & Thau, 2009). Many studies display some methodological shortcomings (Hoel, et al., 2002; Moayed, Daraiseh, Shell, & Salem, 2006), as some studies use self-selected samples of highly exposed long-term targets of bullying (like for instance: Leymann & Gustafsson, 1996). Consequently, results may be influenced by self-selection bias, addressing only the most severe cases, and must therefore be interpreted with caution. Most results also stem from homogeneous samples, which is an obstacle to generalising findings (see: Hauge, et al., 2007 for an exception.). Additionally, some studies use measures of unknown quality or single-item operationalisations of different job characteristics. Finally, researchers often only report bivariate correlations between job characteristics and bullying, without performing multivariate analyses (Hoel, et al., 2002; Moayed, et al., 2006; Zapf, 1999b). In consequence, our knowledge of the relationships between job characteristics and bullying is limited and fragmented (Hauge, et al., 2007) and it needs to be systemised in order to highlight the importance of different job characteristics as antecedents of bullying.

There are different ways of relating a stressful environment to reports of workplace bullying. Firstly, employees who face many stressors in their job may become targets of bullying because stressors lead to behavioural and affective reactions that may encourage others to victimise them (Baillien, et al., 2009; Bowling & Beehr, 2006). Secondly, individuals reporting job characteristics probably share them with potential perpetrators. These job characteristics may result in perpetrators engaging in bullying (Baillien, et al., 2009). In both cases, based upon Berkowitz's (1989) revised frustration-aggression hypothesis, one may argue that frustration because of job characteristics may mediate the relationship between job

characteristics and workplace aggression. Frustrated employees may provoke others, who in turn may retaliate against them. According to the social interactionist perspective (Felson & Tedeschi, 1993a, 1993b; Neuman & Baron, 2003), situational factors may also bring about aggression and bullying because the group wants to reaffirm norms when workers deviate from expectations. In this case, bullying is an intentional response to norm violating behaviour and an instrument for social control (Hoel, Rayner, & Cooper, 1999). Furthermore, attribution theory (Baron, 1990) suggests that people tend to make personal attributions (e.g. blaming a co-worker) for events caused by situations (e.g. job characteristics such as workload or role ambiguity). Therefore, stress and frustration caused by job characteristics may also trigger a search for scapegoats, and frustration may be relieved by a process of projection (Brodsky, 1976; Thylefors, 1987).

Scholars have repeatedly mentioned the Job Demand Control Model ('JDC-Model') (Karasek, 1979) as a valuable explanatory framework for stress at work and therefore also potentially for workplace bullying. In particular, the combination of low control and high demands is regarded as an important cause of stress in general, and therefore also of workplace bullying (Einarsen, et al., 1994; Hoel, et al., 2002; Leymann, 1993). To our knowledge, empirical studies testing the JDC-Model in relation to workplace bullying are rather scarce, with three notable exceptions (Baillien, De Cuyper, & De Witte, 2010; Baillien, Rodríguez-Muñoz, et al., 2010; Tuckey, et al., 2009). These studies support the JDC models as an explanatory framework for workplace bullying. In particular, it was found that strain, modelled as the interaction between demand and control, leads to reports of workplace bullying. These findings do contribute to our understanding of the use of the JDC-Model to understand workplace bullying. However, from both a theoretical and prevention point of view, the identification of the conditions for reporting workplace bullying, i.e. at what level of demand

and control bullying arises, is still somewhat unclear. The present thesis therefore aims to explore the level of control and job demands at which bullying thrives.

The JDC model reduces the working environment and thereby the stress process to two main features: demand and control, and their interaction. There are, of course, many other job characteristics that may cause frustration and stress at work. They are captured by different established work environmental stress frameworks, such as the Michigan Stress Model (French & Caplan, 1972; Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964; Winnubst, 1996), the Job Characteristics model (Hackman & Oldham, 1976, 1980), the Effort Reward Imbalance model (Siegrist, 1996), the Demand Resources Model (Bakker & Demerouti, 2007) and the Demand Induced Compensation Stress model (de Jonge & Dormann, 2006). The most extensive work environmental stress model, however, is Peter Warr's (1987) 'Vitamin model', in which Warr integrated all existing job characteristics. This model may be considered the most comprehensive synthesis of job characteristics to date (Warr, 2007). This synthesis may serve as a guideline, since Warr's list of environmental features (cf. job characteristics) have been theoretically and empirically associated with the occurrence of workplace bullying. Given the risk control approach of the present thesis, Warr's exhaustive list may provide a way of studying how the design of work may function as an antecedent of the occurrence of bullying in the workplace.

6. Aim

The overall aim of the present thesis is to contribute to the first step of the risk control cycle, i.e. the identification of the hazard, the risk groups and the possible antecedent job characteristics in relation to workplace bullying. A trustworthy baseline is the pillar of risk assessment and successful implementation of a risk control cycle. However, implementing a risk control cycle to combat workplace bullying involves some 'unresolved' research issues. Firstly, the measurement and estimation of exposure to workplace bullying must be addressed (Nielsen, 2009). Secondly, the risk control cycle raises issues regarding the identification of targets of workplace bullying, as well as the assessment of risk groups in relation to bullying. Thirdly, the risk control cycle raises issues regarding the conditions in the working environment in which bullying thrives.

The repetitive nature of the phenomenon, and thereby the escalatory process described on a theoretical level, implies that there are more than two groups, i.e. non-bullied and bullied respondents. Based upon scholars' descriptions of the phases of workplace bullying, and the repetitive nature of the phenomenon, one could expect at least four groups, all of whom vary in terms of the degree and nature of exposure. Firstly, many will not face bullying. Secondly, there should be a group of respondents who only experience subtle and infrequent negative acts. Thirdly, a group should emerge that experiences somewhat more frequent negative acts, where bullying is more visible but still not extreme. Finally, a group of respondents that faces frequent negative acts, i.e. targets of severe workplace bullying, should emerge. The first study (Paper 1) in the present thesis aims to empirically explore the number of target groups of workplace bullying. In addition, the construct and the predictive validity of the obtained target groups will be explored.

After identification of the different target groups, it is important to understand the risk factors of workplace bullying, as both aspects are an important basis for the development of prevention and intervention strategies to prevent workplace bullying (Schat, et al., 2006). The assessment of risk groups is important to both policy-makers and interventionists, as it may help them to develop tailor-made interventions. The second aim of the study is to identify the risk groups of bullying, taking into account that different exposure groups may exist (cf. Paper 2). Gender, occupational status, industries/sectors and other socio-demographical variables will be explored to identify the groups who are most likely at risk of workplace bullying, employing a large and heterogeneous sample.

The first step of the risk control cycle should not end with the identification of risk groups. Associated risk factors in the workplace should also be investigated, as bullying may occur in a stressful working environment (Leka, Cox, et al., 2008). With respect to the risk control cycle, the risk factors that may be attributed to the working environment predominate, since the design of work or jobs is the responsibility of and under control of the employer. In this context, the Job Demand Control Model ('JDC-Model') (Karasek, 1979), the most dominant stress environmental framework in work and organisational psychology, has often been mentioned as a valuable model in explaining the occurrence of workplace bullying (Baillien, De Cuyper, et al., 2010; Hoel, et al., 2002; Leymann, 1993). Considering that bullying has been defined as being subjected to persistent and repeated negative acts, the aim of the third study is to examine whether the likelihood of being a target of severe workplace bullying may function as an outcome variable in the JDC-Model. Accordingly, it is hypothesised that the main effects and the interaction between job demands and job control are significantly related to the likelihood of being classified among the targets of severe workplace bullying. In addition, this study (cf. Paper 3) also aims to identify the level of demands and control that may be associated with an increase in the likelihood of being a target of severe workplace

bullying. To align more closely with the philosophy of the risk control cycle, the interaction term will be further analysed in the present thesis than it was in Paper 3.

Investigating the JDC-Model as a theoretical framework for explaining exposure to severe bullying may be valuable, as it may highlight the level of demands and control at which workplace bullying is experienced. This may be particularly interesting when trying to reduce exposure to this hazard, because specific conditions associated with reporting bullying are brought to the employers' attention. However, the JDC-Model (Karasek, 1979) reduces the work environment to two main – though important – factors. The aforementioned overview of earlier empirical research on work-related antecedents (cf. Table 2. Job characteristics) implies that understanding the reasons why workplace bullying prevails goes further than drawing a simple distinction between jobs in terms of the level of demand and control employees experience. In order to arrive at a comprehensive selection of job characteristics in the fourth study, Warr's 'Vitamin model' is used as a starting point for the fourth and last study in this thesis (Warr, 1987, 2007). In particular, it is hypothesised that opportunities for control, opportunities for the use of skills, externally generated goals, variety and environmental clarity are directly associated with exposure to workplace bullying. To ensure better alignment with the risk control cycle, the results from the last Paper are complemented by a reanalysis of the data that enables me to produce odds ratios. The latter is not unimportant, as identifying which job characteristics are more prone to be directly associated with being a target of severe bullying may be useful when developing control strategies and interventions.

7. Method section

7.1 Samples

A major concern in the arena of workplace bullying is the generalisability of the findings, because self-selected and homogeneous samples are widely used. However, in the present thesis, various hypotheses are tested on large and very heterogeneous samples.

For the first study (Paper1) and the last study (Paper 4) a total of 6,175 questionnaires were collected from 16 Belgian organisations. A total of 57% of the respondents completed a Dutch version and 43% a French version of a questionnaire addressing exposure to job characteristics, job strains, well-being and workplace bullying.[i] The mean age of the respondents was 41 years (std=10.7). While 48% of the sample stem from the private sector, 27% came from public health institutions and 25% from governmental institutions. The distribution of occupational status was as follows: 9% blue-collars, 31% white-collars, 4% social workers, 13% nurses, 21% civil servants, while 10% had a lower managerial position and 11% a higher managerial position. Gender was fairly equally distributed in the sample. A total of 78% percent of the respondents had a permanent contract, while 15% were on a temporary contract and 7% had other types of contract (agency workers / independent).

For the second study (Paper 2), only the Flemish respondents from the former study were selected and merged with the data from the Katholieke Universiteit Leuven Mobbing group, which included Flemish-speaking employees in small, medium and large organisations (Baillien, Neyens, De Witte, & Vanoirbeek, 2005). After merging, a dataset was obtained containing 8,985 Flemish-speaking respondents in 86 firms spread over the main industries. The sample consisted of 46.4% females and 53.6% males. About 9% of the respondents had a

temporary contract, whereas almost 91% had a permanent contract. Approximately 83% of the respondents worked full-time, while 17% worked part-time. One out of five respondents held a managerial position. Furthermore, the sample consisted of 8% blue-collar workers, 27% white-collar workers, 7.6% nurses, assistant nurses or social workers, 27% public servants not holding a managerial position, 10% public servants holding a managerial position, 6% in lower management positions (not public sector), and 10% in higher managerial positions, in addition to 4% who were teachers. The distribution across five age groups was as follows: 4% were younger than 25 years of age, 27.5% were between 25 and 34 years of age, 29% were between 35 and 44 years of age, 29% were between 45 and 54 years of age, and 10.5% were older then 55 years of age.

The third study (Paper 3) relied on the same dataset that was collected for the first paper, adding, however, new observations collected in new organisations. As a result 9,363 questionnaires were analysed for 30 organisations. Of the participants, a small majority were male respondents and 44% were female. The mean age of the respondents was 40.5 (SD = 10) and the mean tenure was 12 years (SD = 11). About 8% were blue-collar workers, whereas 31.8% were white-collar workers. Almost 8% of the respondents were in a low managerial position, whereas about 11% held a higher managerial position. Eight % worked as nurses or assistant nurses, and one out of three respondents was employed in the public sector. Of the individual respondents, 22% worked in manufacturing industries, 37% in the service sector, 33% in governmental services and 7% in the public health sector.

All samples are large and heterogeneous, covering a range of different occupations and industries. This adds to the generalisability of the findings. However, the data are neither representative for the Belgian nor for the Flemish workforce as sampling designs that aimed to be representative were not applied.

7.2 Collection procedures and ethics

For all samples (except for the Leuven Mobbing group part of the sample in Study 2), the organisations contacted the first author in order to participate in a study on psychosocial risk factors at work, which was managed by the Directorate for The Improvement of Working Conditions, a former research institute at the Belgian Federal Government Department for Work. For the Leuven Mobbing group data, the Leuven Mobbing Group sought collaboration with organisations for their study about Bullying in the Workplace (Baillien, et al., 2005).

Participation by employees was voluntary. Depending upon the organisation, the paper-and-pencil questionnaires were returned to the first author, sent to the organisation's external prevention services or collected in sealed containers spread in the participating organisation. Regarding the data from the Leuven Mobbing group, most participants returned sealed envelopes to the Leuven Faculty of Psychology, while the other respondents completed a questionnaire on the internet. In all projects, anonymity was guaranteed by all parties.

7.3 Measures

In all the studies, exposure to workplace bullying was measured using a 16-item Belgian version of the '*Negative Acts Questionnaire'* (Einarsen & Raknes, 1997). The Negative Acts Questionnaire (NAQ) was probably the most widely used instrument for measuring workplace bullying (Nielsen, et al., in press). The NAQ uses polytomous items to measure exposure to unwanted and negative acts at work, typically workplace bullying. Three types of negative acts are included in this questionnaire: person-oriented acts, work-related acts and acts involving persons being socially excluded (Einarsen & Raknes, 1997). Four response categories ('never', 'now and then', 'once a month' and 'once a week or more') were presented to the respondents.

In the first study, three single-item, self-labelling questions were used in order to establish the construct validity of the latent class cluster groups. In some samples, the respondents were offered the following item: 'Have you been bullied?' In other samples the time span was specified: 'Were you bullied during the past six months?'. Both single-item operationalisations could be scored on a four-point scale ranging from 'never' to 'always'. In only four organisations the respondents got the Belgian legal definition of workplace bullying: 'any illegitimate and recurrent behaviour, within or outside an enterprise or institution, than can manifest itself in the form of behaviour, verbal aggression, threats, gestures and unilateral writings. It is aimed at, or has as a consequence, that the personality, the dignity or the physical or psychological integrity of an employee (or any other person to whom the law can be applied) is harmed during work, that his position is jeopardized or that an atmosphere is created that can be labelled threatening, hostile, offensive, or humiliating'. After having read the definition, respondents were given four response options ('no, never', 'yes, seldom', 'yes, often', 'yes, several times a week') to indicate how often they considered themselves to have been bullied during the past six months.

To establish predictive validity in the first study, outcome or criterion measures were taken from the '*Questionnaire on the Experience and Evaluation of Work'* (van Veldhoven & Meijman, 1994). This is a well validated instrument for measuring job characteristics and well-being that is widely used in Belgium and the Netherlands (van Veldhoven, de Jonge, Broersen, Kompier, & Meijman, 2002; van Veldhoven, Taris, de Jonge, & Broersen, 2005). All items measuring criterion variables were dichotomous scores; 'yes' or 'no'. *Pleasure at work* was measured using nine items such as 'I dread going to work', 'I only do my work because I have to', and 'I'm pleased to start my day's work'. Internal stability as measured by Cronbach's alpha was .84 in the present study (Paper 1). *Recovery need* (α=.88) was based on

11 items such as ‘I find it difficult to relax at the end of a working day’, ‘By the end of the working day, I feel worn out’ and ‘Because of my job, at the end of the working day I feel absolutely exhausted’. *Worrying* (α=.81) was measured by four items: ‘When I leave my work, I continue to worry about work problems’, ‘I can easily detach myself from my work’, ‘During my free time, I often worry about work’ and ‘I often lie awake at night ruminating about things at work’. *Quality of sleep* (α=.90) was measured using 14 items, such as ‘I often do not get a wink of sleep at night’, ‘I often get up during the night’ and ‘At night, more often than not, I toss and turn’.

Job characteristics, seen as possible antecedents of workplace bullying in Studies 3 and 4, were also measured using the ‘*Questionnaire on the Experience and Evaluation of Work’* (van Veldhoven & Meijman, 1994). All items related to the job characteristics were scored on a four-point scale ranging from ‘never’ to ‘always’. Opportunities for control were measured using two scales. The *task autonomy* scale contains 11 items (Cronbach’s alpha = .91; examples of items: ‘Can you influence the planning of your work activities?’ and ’Can you influence your pace of work?’). *Participation in decision making* was measured using eight items (Cronbach’s alpha = .90; examples: ‘Do you have a lot of say over what is going on in your work area?’ and ‘Can you participate in decisions affecting areas related to your work?’). The *skill utilisation* scale contained four items (Cronbach’s alpha = .91). Examples of items are ‘Do you learn new things in your work?’ and ‘Does your job offer you opportunities for personal growth and development?’ The broader dimension of externally generated goals consists of three scales. *Workload* was measured using 11 items (Cronbach’s alpha = .88; examples of items: ‘Do you work under time constraints?’ and ’Do you have to work fast?’). *Cognitive demands* were conceived using seven items (Cronbach’s alpha = .87) such as ‘Does your work require a lot of concentration?’ and ‘Do you have to be very precise when performing your job?’ The *role conflicts* scale (Cronbach’s alpha = .71) contained four items,

such as ‘Do you receive contradictory instructions?’ and ‘Do you have to do your work in a way which differs from the method of your choice?’ *Variety* was assessed using six items (Cronbach’s alpha = .84; examples: ‘Do you often have to repeat the same activities at work?’ and ‘Does your work require you to be creative?’). *Role ambiguity* was measured by six items (Cronbach’s alpha = .81; example: ‘Do you know what other people expect from you in your work?’). *Job insecurity* was measured by four items (Cronbach’s alpha = .94) related to the certainty of keeping the job in the near future. The *changes in the job* scale contained five items (Cronbach’s alpha = .73; example: ‘Are there significant changes taking place in your work?’). The availability of *feedback* was measured by seven items (Cronbach’s alpha = .86), such as ‘Does your work provide you with direct feedback on how well you are doing your work?’ and ‘Does your work offer an opportunity to check how well you are performing?’.

7.4 Statistical Analyses

7.4.1 Distinguishing targets groups of workplace bullying.

Latent Class (LC) Analysis is a relatively uncommon data analytic approach in work and organisational psychology. In contrast to areas such as medicine, biology, criminology, sociology, economy and psychiatry, few LC approaches have been reported. The rationale for using the technique, its modelling strategy and its use are therefore highlighted in the following section.

Latent class cluster analysis

Latent class cluster analysis (Magidson & Vermunt, 2001, 2002b, 2004; Vermunt, 2001; Vermunt & Magidson, 2002) is a statistical method that systematically classifies respondents into mutually exclusive groups with respect to a given trait (e.g. exposure to workplace bullying) that is not directly observed (manifest). The classes are not directly observable, they are latent (Vermunt, 2004). The first study aims to find out whether a respondent is a victim

of workplace bullying. To establish this within the tradition of the behavioural experience approach a list of negative acts that describe symptoms of bullying may be used. Because in the behavioural experience approach, one cannot directly determine who is bullied and who is not, a list is required consisting of indicators of bullying. In the first study of the thesis, the Negative Acts Questionnaire was employed. The NAQ contains behaviours that are indicators of workplace bullying. When making such a behavioural list, it is assumed that someone who is a target of (severe) workplace bullying will respond differently to such questions than someone who is not bullied. Such symptoms or indicators are '*Gossip or rumours about you*', '*Social exclusion from co-workers or work group activities*', '*Ridicule or insulting, teasing*', '*Someone withholding necessary information so that your work gets complicated*', '*Devaluing of your work and efforts'* and, for example, '*Verbal abuse: insults*'. Furthermore, it is assumed that a respondent who is bullied has a higher probability of reporting such behaviour(s), while someone who is not bullied has a lower probability of endorsing these items. However, it is clear that not everyone who has reported a specific negative act (for instance '*Verbal abuse: insults*') is a target of severe bullying and also that not every target will be subjected to a particular negative act (for instance '*Verbal abuse: insults*') (Notelaers, De Witte, Vermunt, & Einarsen, 2006). Hence, the relationship between being a target of workplace bullying and reporting such symptoms is a probabilistic one (cf. Vermunt, 2004).

In latent class cluster (LCC) analysis, one empirically investigates whether the assumption about the relationship between the latent variable (being bullied) and the number of reported or observed symptoms ('negative acts') is acceptable. LCC analysis enables the researcher to identify mutually exclusive groups that adequately describe the dispersion of observations in the n-way contingency table of discrete variables (i.e. negative acts). The goal of LCC analysis is to determine the smallest number of latent classes, T, sufficiently explaining (or

accounting for) the associations observed between the manifest variables ('negative acts') (Magidson & Vermunt, 2004).

The starting point for a latent class cluster model is that a typology cannot be established: everybody resides in the same group. Next, a two-cluster model (not bullied / bullied), a three-cluster model (for instance: not bullied / occasionally bullied / victim of bullying) and an n-cluster model are estimated. Thus, clusters are subsequently added until an LCC model is found that statistically fits the data (McCutcheon, 1987; Vermunt & Magidson, 2002). As in factor models, the discrete latent variable must adequately explain the initial relationship between the indicators.

An important difference from traditional cluster methods such as K-means clustering is that the LCC analysis is based upon a statistical model that can be tested (Magidson & Vermunt, 2002b). In consequence, determining the number of LCs is less arbitrary than in K-means clustering, where the assignment of subjects to clusters is based upon maximisation of the between-cluster variance (Magidson & Vermunt, 2002a). While, assuming that a subject can only belong to one cluster, an LCC analysis creates mutually exclusive groups, the latent class cluster model is not infallible. LCC analysis takes into account uncertainty concerning the membership of an object in a latent cluster (membership probabilities) and calculates the classification error. This error indicates the total percentage of subjects that may be wrongly classified in the adjacent classes. These memberships are calculated on the basis of the estimated parameters of the model and the observed values (Magidson & Vermunt, 2001).

Determining the number of clusters

The iterative process can be inspected by the drop in L^2. L^2 (a badness of fit index) is a translation of how much association is left to be explained and follows a χ^2 distribution. An L^2

of 1 is considered to be a perfect fit. Going from the one cluster model to the second cluster model is associated with an improvement of fit if L^2 drops. Given that the latent class models in the present thesis were analysed using Latent Gold 3, no statistical procedure (such as a conditional bootstrapping procedure) was available to evaluate whether such an improvement of fit was significant. Therefore, the determination of the number of latent clusters was based upon the Bayesian Information Criterion (BIC). Magidson & Vermunt (2001) propose accepting the model with the lowest BIC. In addition, it should be verified whether the corresponding latent class model is non-significant. Hence, a given L^2 with a number of degrees of freedom should be larger than 0.05, a p-value that may be adjusted to 0.01 in larger samples. However, for very sparse tables, it is likely that L^2 will not follow an χ^2 distribution. Therefore, Langeheine, Pannenkoek & van de Pol (1996) suggested a bootstrapping procedure that was implemented in Latent Gold 3 (Vermunt & Magidson, 2003). This procedure is used here because bullying items are highly skewed and many combinations of specific negative acts are uncommon, which results in very sparse tables.

Moreover, with respect to the assessment of the fit of a model, it should be noted that the bivariate residuals (BVR) given in Latent Gold (but not shown in the present thesis) should be lower than or equal to three. This means that all bivariate associations are explained by the discrete latent variable. If, however, a large number of BVRs are higher than three in the model with the lowest BIC, this may indicate that explaining the associations between indicators may benefit from a latent variable being added instead of adding a latent class. If some bivariate residuals are higher, it may be a good option to let indicators correlate without adding an additional latent class (Hagenaars, 1998; Magidson & Vermunt, 2004; Uebersax, 2009) (see: non-traditional latent class analysis; e.g. Magidson & Vermunt, 2004). In practice, however, with many polytomous indicators and large samples, L^2 will inflate as χ^2 inflates. Therefore, I suggest that most of the initial association between each pair of

indicators should be accounted for by the latent variable. Hence the reduction in BVR should be a least 85% (Notelaers, Vermunt, et al., 2005; Notelaers, Vermunt, De Witte, & van Veldhoven, 2003b). This may, in fact, prevent Latent Gold from adding an additional cluster for each pair or few pairs of BVRs higher than three, thereby creating somewhat meaningless classes (Uebersax, 2009).

What does the latent class variable look like

The resulting latent variable is discrete in nature. Unlike traditional factor models, it is not a continuum. Moreover, the categories of the latent variable, i.e. the classes, may not be strictly ordered. This means that the latent variable has nominal categories: classes that are only different from each other as in a typology (Vermunt, 2004).

The discrete latent variable obtained from Latent Gold can be exported to more common statistical software packages such as SPSS, where it can be treated like other variables, i.e. as a nominal or ordinal variable.

However, Latent Gold also offers the opportunity to export the conditional classification probabilities: the probability that, given a latent class model, a subject is classified in a particular latent class (Vermunt & Magidson, 2003). The latter may be extremely useful because, for each class, a variable is created that indicates the classification probability for each subject. This variable can be used to further investigate research hypotheses using more common statistical software packages (see for an example: De Cuyper, Rigotti, De Witte, & Mohr, 2008). The probability of being a target of severe bullying will, however, differ from exposure to bullying measured by the sum of responses to negative acts. The sum score does not take into account that different target groups may exist in relation to the nature and frequency of the reported bullying. The classification probability of being a target of severe

workplace bullying takes into account that different groups may exist.

7.4.2 Exploring risk groups and risk factors in relation to workplace bullying

Study 2 aims to investigate possible risk groups in relation to workplace bullying. Firstly, target groups of workplace bullying are empirically distinguished by an LC analysis in Latent Gold. Secondly, the odds ratios are obtained by a multinomial logistic regression model in SPSS 15. As a result, the relative risk of belonging to a possible target group will be obtained. In the first step of the multinomial regression model, the question of whether socio-demographical variables were related to being exposed to bullying is examined (cf. the Likelihood Ratio test). In the second step, only the significant relationships are withheld. In this step, the likelihood of being classified in a specific target group (for example: severely bullied) or of being classified as not being bullied are compared in relation to the different categories of the independent variable (for example within the occupational status: blue-collar) taking one category (for example: white-collar) as a reference group. Hence, the odds ratios reveal the relative risks of being bullied, while controlling for other possible risk factors.

A large and heterogeneous sample of Flemish-speaking respondents was used in the second study. For every socio-demographic variable, a reference category was chosen. Since the choice of the reference category may determine the results, this needs further elaboration. The Flemish employment market is predominantly service-oriented. Therefore, both the service sector and white-collar workers were used as a reference group. To be able to assess the age of the respondents as a risk factor, the oldest category (over 55 years of age) was used as a reference. The choice of other reference categories is more obvious, the largest one being

chosen as a reference category. Hence, being male, having a permanent contract and working during the day function as reference categories.

In the third study, it is hypothesised that job demands, job control and the interaction between them are significantly related to exposure to workplace bullying. To align this with the risk control approach, the probability of being a target of severe bullying is used as a dependent variable to test the research hypotheses. For that reason, a latent class cluster approach as presented above preceded the investigation of the research hypothesis.

In order to advance research, we also tested the levels at which job demands and job control significantly increase the probability of being a target of severe bullying. Therefore, demands and control are also categorised by means of an LCC-approach (Notelaers, De Witte, van Veldhoven, & Vermunt, 2007; Notelaers, et al., 2003a; Vanroelen, Levecque, Moors, Gadeyne, & Louckx, 2009). Preliminary calculations were performed in Latent Gold 3 (Vermunt & Magidson, 2009). These made it possible to distinguish in a non-arbitrary way the levels of exposure to demands and control employees report (Notelaers, et al., 2007; Notelaers, et al., 2003a; Vanroelen, et al., 2009).

After the preliminary calculations, the research hypotheses were tested by means of SPSS 15, applying a multivariate analysis of variance. This statistical technique is quite robust as regards the violation of the assumptions of normally distributed data. In the analysis, the levels of demands and control obtained are introduced as independent variables, and the probability of being a target of severe bullying is conceived as the dependent variable. Boneforonni pair-wise comparison procedures helped to identify the thresholds of workplace bullying for both main effects and the interaction effect. Note that the latter is only extensively inspected in function of the risk control perspective of the present thesis.

In the fourth paper, the relationships between bullying and a large range of job characteristics were analysed using a hierarchical regression analysis. In the first step, numerous social demographical variables were introduced as controls, and, in the second step, the job characteristics were inserted. By simultaneously estimating the effects in this regression analysis, the relative importance of all job characteristics can be assessed.

However, to align them with the risk control cycle, which is central to this thesis, the data from the fourth paper are re-analysed for the purpose of this thesis and presented. From a risk control cycle perspective it is important to establish which job characteristic contributes to be classified as a target of severe bullying as compared to be classified as not bullied. Therefore, a binomial regression model was used to obtain estimates of being classified as a victim of workplace bullying compared with being classified as not being bullied. Since this study uses the same dataset as the first study, the classifications results from the latent class cluster approach were used as a dependent variable in a binomial regression model.

8. Results

8.1 Estimating exposure to bullying

The aim of the first study is to explore and validate the number of target groups in relation to workplace bullying. Firstly, the number of target groups will be empirically estimated using a latent class cluster approach. Secondly, the validity of the obtained clusters will be examined. Initially, different self-labelling measures are used to evaluate the latent class cluster solution. Then the scores for outcome measures for the different clusters will be investigated.

8.1.1 Determining the number of latent class clusters

Based upon several descriptions of the process of workplace bullying (Björkqvist, 1992; Einarsen, et al., 2010; Leymann, 1993), it is hypothesised that several target groups exist that differ with respect to the extent of reported bullying.

The following table shows the fit statistics for the NAQ and helps to determine the number of targets groups. The indicators are treated as nominal measurements, as the BIC among models with ordinal indicators was substantially higher, indicating a deterioration of fit.

The BIC in Table 3 decreases as the number of clusters increases. Hence, determining the appropriate number of clusters is difficult based on BIC alone. Therefore, the bivariate residuals (BVR) were examined, starting from model six because, from that model on, the bootstrapped p-value exceeded the level of 0.01. The BVRs in model six were particularly high among the following pairs of indicators: a) '*Devaluing of your work and efforts* ' and '*Neglect of your opinions or views* ' b) '*Ordered to do work below your level of competence* ' and '*Being deprived of responsibility or work tasks* ' c) '*Gossip or rumours about you* ' and '*Repeated offensive remarks about you or*

your private life '. The fact that the new cluster in model seven was mostly determined on the basis of the aforementioned bivariate associations, indicated that it should be tested whether a six-cluster model in which local dependencies between these pairs of indicators were accepted, would fit the data better. The result of this step is portrayed in model 10 in which six clusters were obtained, while relaxing the assumption of local independency for the three pairs of indicators (cf. non traditional latent class modelling in : Magidson & Vermunt, 2004). The BIC of this model is lower than the BIC of competing models, except for model 9 in which latent classes were based on a similar rationale as in model 7. To check whether even fewer clusters were needed, the local independency assumption was also relaxed in the five-cluster model (cf. model 11 in Table 3). Model 11, in which the same pairs were allowed to associate freely, yielded a higher BIC. This indicates a deterioration of fit. It was therefore concluded that model 10, which distinguishes six latent clusters, was the most appropriate model.

Table 3: Various fit statistics for different cluster models for the negative acts questionnaire.

Model	Number of clusters	BIC (LL)	Npar	L^2	Reduction in L^2	Bootstrap p-value	Classification Error
1	1 / nominal indicators	133571	48	56344		0	0
2	2 / nominal indicators	119784	97	42135	0,25	0	0,039
3	3 / nominal indicators	116320	146	38247	0,32	0	0,075
4	4 / nominal indicators	114903	195	36407	0,35	0,002	0,097
5	5 / nominal indicators	114243	244	35323	0,37	0,008	0,11
6	6 / nominal indicators	113911	293	34567	0,386	0,036	0,13
7	7 / nominal indicators	113790	342	34023	0,396	0,064	0,14
8	8 / nominal indicators	113831	391	33640	0,4	0,06	0,15
9	9 / nominal indicators	113929	440	33315	0,41	0,038	0,15
10	6 / 3 local depend /nom ind	113107	320	33530	0,4	0,112	0,17
11	5 / 3 local depend / nom ind	113272	271	34118	0,39	0,07	0,138

The percentage reduction in L^2 is 40%. Given that the bootstrapping procedure was used, the model is significant at $p < 0.01$. Not shown, but noteworthy, is the pseudo r^2 of 71%. This is a measure comparable with the proportion of explained variance in traditional factor analysis. The total amount of adjacent erroneous classification was 17%.

8.1.2 On the meaning of the latent class clusters

The meaning of the clusters is derived from the profile output in Latent Gold 3 (Vermunt & Magidson, 2003). The latent profile contains conditional probabilities that show how the clusters are related to the distinct negative acts (Vermunt & Magidson, 2003). The following table summarises the profile output. The first row represents the size of the clusters. The other cells in Table 3 represent the mean (average) of the conditional probabilities (CP = the probability that an answer is linked to a certain cluster) of responding 'never', 'now and then', 'once a month' or 'once a week or more' to all negative acts during the last six months.

Table 3: Summary overview of the relationship between clusters and response categories in the Negative Acts Questionnaire: mean conditional probabilities.

		Latent Class Clusters					
		Not bullied (NB)	Limited Work Criticism (LWC)	Limited Negative Encounters (LNE)	Sometimes bullied (SB)	Work related Bullying (WRB)	Victim (Victim)
	Proportion	0,353	0,277	0,165	0,09	0,083	0,032
Response categories	'Never'	0,927	0,718	0,638	0,31	0,551	0,152
	'Now and then'	0,067	0,246	0,336	0,58	0,225	0,31
	'Once a month'	0,004	0,024	0,017	0,08	0,117	0,217
	'Once a week or more'	0,002	0,013	0,009	0,03	0,107	0,32

Respondents in the first cluster are characterised by a mean CP of 0.93 that they have 'never' been subjected to negative acts during the last six months. The profile output demonstrates that some negative acts have a lower CP: '*Someone withholding necessary information so that your work gets complicated*' (0.70), '*Ordered to perform work below your level of competence*' (0.75) and '*Gossip or rumours about you*' (0.86). Because of the high mean conditional probability that employees 'never' report negative acts, the respondents in this cluster are labelled as '**not bullied**'. Thirty five per cent of the sample was not bullied.

The respondents in the second cluster are also characterised by a high mean CP of answering 'never' to the 16 items defined as negative acts. This time, however, the mean CP drops to 0.72. The CP of answering 'now and then' is higher for some negative acts: '*Someone withholding necessary information so that your work gets complicated*' (0.54 'now and then'), '*Ordered to perform work below your level of competence*' (0.54 'now and then') and '*Devaluing of your work and efforts*' (0.56 'now and then'). These negative acts tap into the domain of work-related negative behaviour. It is therefore proposed to label this cluster the '**limited work criticism'** cluster. This cluster is the second biggest cluster, covering about 28% of the respondents.

The respondents in the third cluster are characterised by two CPs. The mean CP that they have 'never' been subjected to negative acts during the last six months is 0.64, while the mean CP

that they have 'now and then' been subjected to these acts is 0.34. The CP of answering 'now and then' is higher for some negative acts: '*Someone withholding necessary information so that your work gets complicated*' (0.43 'now and then'), '*Verbal abuse: insults*' (0.51 'now and then'), '*Gossip or rumours about you*' (0.71 'now and then'), '*Repeated offensive remarks about you or your private life*' (0.41 'now and then'), '*Devaluing of your work and efforts*' (0.53 'now and then') and '*Neglect of your opinions or views*' (0.65 'now and then'). However, some acts are almost 'never' reported: '*Being deprived of responsibility or work tasks*' (0.85 'never'), '*Social exclusion from co-workers or work group activities*' (0.80 'never'), '*Hints or signals from others that you should quit your job*' (0.93 'never') and '*"Funny" surprises*' (0.95 'never'). The respondents in this cluster have a fair chance of sometimes reporting negative acts of two distinct types, i.e. work-related and person-oriented negative acts, whereas various negative acts that tap into the domain of social isolation are mostly 'never' reported. This cluster is therefore named the '**limited negative encounters**' cluster. Nearly 17% of the respondents belong to this cluster.

The fourth cluster is characterised by a mean CP of almost 0.60 of 'now and then' being subjected to a given negative act during the reference period of six months. For some acts, the CP of answering 'now and then' is substantially higher, however: '*Verbal abuse: insults*' (0.68 'now and then'), '*Gossip or rumours about you'* (0.76 'now and then'), '*Silence or hostility as a response to your questions or attempts at conversations*' (0.71 'now and then'), '*Devaluing of your work and efforts*' (0.76 'now and then'). These CPs seem to suggest that the employees in this cluster are bullied. Their mean CP of answering 'never' is still 0.31, however. For some acts in particular, the CP of answering 'never' is even higher: '*Verbal abuse: insults*' (0.41 'never'), '*Funny"surprises*' (0.48 'never'), '*Hints or signals from others that you should quit your job*' (0.62 'never') and '*Exploitation at work such as private errands*' (0.74 'never'). Altogether, the respondents in this cluster have a relative high likelihood of sometimes reporting negative acts

that tap into three domains. Person-oriented and work-related negative behaviour is reported together with negative acts that refer to attempts to socially isolate the respondent. Hence, this cluster is labelled the '**sometimes bullied**' cluster. Nine percent of the sample belong to this cluster.

A first look at the mean CPs in the fifth cluster shows that it is characterised by a mean CP of 0.55 of answering 'never'. However, the CPs that typify this cluster are the mean CP of answering 'once a month' and 'once a week or more'. On average, the sum of these CPs is only 0.22. For job-related acts, however, the CPs are higher: '*Someone withholding necessary information so that your work gets complicated*' (0.49), '*Ordered to perform work below your level of competence*' (0.32), '*Devaluing of your work and efforts*' (0.43) and '*Neglect of your opinions or views*' (0.51). Yet, the mean CPs of 'never' reporting person-related negative acts and social isolation are high: '*Social exclusion from co-workers or work group activities*' (0.74 'never'), '*Verbal abuse: insults*' (0.87 'never'), '*Repeated offensive remarks about you or your private life*' (0.78 'never'), *Hints or signals from others that you should quit your job* (0.79 'never') and '*"Funny" surprises*' (0.81 'never'). The high CP for the answers 'once a month' and 'once a week or more' for job-related negative acts, and the high CP of answering 'never' to most of the other types of negative acts, suggest that this cluster is a '**work-related bullying**' cluster. Eight percent of the employees were classified in this cluster.

The last cluster is characterised by the highest mean CP that the respondents have been subjected to bullying at work at least once a week. This mean CP is .32. For almost every single negative act, the likelihood of responding 'once a week' is highest among respondents in this cluster. It is also interesting that respondents in this cluster show the lowest mean CP of 'never' having been subjected to negative acts during the last six months. Therefore, the

respondents in this cluster are conceived as targets of severe bullying who may be labelled '**victims**' or '**targets of severe bullying**'. About 3% of the sample belong to this cluster.

8.1.3 Validity of the latent class cluster approach

The correlations between the cluster model and the different self-assessments of bullying were calculated in order to establish the construct validity of the LC clusters. The Spearman correlations between the latent cluster approach and two first subjective measures were 0.38 and 0.38. The Spearman correlation between the latent class approach and the third self-labelling method, i.e. the legal definition, was 0.51. The associations between the latent cluster model and the subjective methods are not very strong. However, the correlations are concentrated on the main diagonal of a cross tabulation table. These diagonal cells only reveal partial information about the validity, because they only allow one type of erroneous classification to be discerned.

To obtain a more detailed view of possible misclassifications, additional cross tabulations were computed between the objective and the subjective measures. In examining these tables (not shown in this thesis), the number of respondents who, given their subjective self-judgment, are wrongly classified by the LCCA was examined. Following Leymann (1990b), two types of erroneous classifications may emerge: firstly, those respondents who 'never' perceived themselves as victims of bullying and who were classified as victims by the LCC approach. This type of error is labelled a type I error; secondly, those respondents who perceive themselves as victims (at least often or once a week), but are not categorised as victims by the LCC approach. This type of error is labelled a type II error. These cases represent a misfit or erroneous classification, when the subjective method is used as a reference to evaluate the LCC approach.

Since three self-labelling measures were used, three evaluations must be carried out. For the self-labelling 'Have you been bullied?', the latent cluster solution shows a low rate of misclassification: only 2.7% (type I error = 1.6%, and the type II error is 1.1 %). For the self-judgment 'Have you been bullied during the last six months?', the latent cluster solution has a rate of misclassification of 1.3% (type I error = 1%, and type II error = 0.3%). Finally, when the legal definition was employed, the latent cluster model did not wrongly classify any respondent.

The associations between the latent clusters and symptoms of stress at work (i.e. 'pleasure at work', 'need for recovery', 'worrying' and 'sleep quality') were analysed in order to examine the predictive validity of the LCC approach. Firstly, Spearman correlations were calculated. Next, an analysis of variance was performed. The results showed that all correlations are significant. This suggests that, as expected, being a victim of bullying is associated with strains and lowered pleasure at work. The analysis of variance helps to assess differences between the different clusters with respect to the criterion variables. Therefore, after performing an analysis of variance, post-hoc multiple comparisons (pair-wise Bonferonni tests) were administered.

The one-way analysis of variance shows that all results are significant. Thus, the between-groups variance is significantly higher than the within-groups variance. The variation between the latent cluster categories regarding the outcome variables varies from 0.95 to 1.35. The mean *z*-scores of the victim cluster are quite low, reaching a -1 standard deviation (SD), showing a 1.35 SD difference as regards pleasure at work when compared with 'not bullied' respondents. The results show that well-being and strain outcomes of the 'not bullied' respondents are positive (+ 0.3 SD). As indicated by the Bonferonni pair-wise comparisons, these scores are significantly more positive than the scores of the 'limited work criticism'

cluster. The latter does not report problematic scores because the mean *z*-score is approximately zero for all outcome variables. The 'limited negative encounters' cluster reveals a similar pattern. Their mean *z*-score is significantly more negative as regards sleep quality alone, when compared with the 'limited work criticism' cluster. The mean *z*-scores of the 'sometimes bullied' category are rather negative for all outcome variables. Compared with respondents in the 'limited negative encounters' cluster, their score for pleasure at work is 0.3 *SD* lower, and scores for strains (such as worrying and low sleep quality) are about 0.3 *SD* higher. The respondents in the 'work-related bullying' cluster do not differ from the respondents in the 'sometimes bullied' cluster as regards the strain-related outcomes (i.e. recovery need, worrying and sleep quality). However, their mean score for pleasure at work is more negative, indicating that these employees experience far less pleasure at work than the 'sometimes bullied'. The highest levels of strain were reported in the 'victim' cluster. Victims did not sleep well, they worried a lot and they did not recover well after work. Moreover, they did not experience much pleasure at work. The Bonferonni tests show that victims differed from all other groups, including the 'work-related bullying' cluster.

Workplace bullying is predominantly defined as prolonged, repeated negative behaviour. The first aim of the present thesis was to explore and validate the number of targets groups of workplace bullying. The latent class cluster analysis shows that there are six distinct clusters (five target groups) in terms of the frequency and nature of the reported negative acts. Therefore, the expectation that there are at least four groups in relation to exposure to workplace bullying is confirmed.

8.2 Identifying risk groups in relation to bullying

The aim of the second study is to explore risk groups in relation to workplace bullying with respect to gender, age, educational level, occupation, industry, company size, tenure, type of contract and type of working hours. The latent class cluster approach clearly showed that there are qualitative differences between the different target groups in relation to workplace bullying that go beyond a simple distinction between non-bullied and bullied respondents. Therefore, the risk of being bullied must be investigated, taking these different target groups into account. After estimating a latent class model for a sample containing 8,985 Flemish-speaking employees from 86 organisations (see details in Paper 2), a multinomial regression model in SPSS 15 was deployed to obtain the relative risk or odds ratios of being classified in the target clusters as compared with being classified as not bullied.

The associations between socio-demographic variables and the bullying clusters were established using Likelihood Ratio tests. Not all socio-demographic variables under investigation were significantly associated with the latent class cluster solution. Educational level, tenure and having a leading position had to be left out of the analysis because of multi-collinearity. The size of the company could not be included in the model because the number of organisations was too small.

A first examination of the significant odds ratios across the different clusters of bullying showed that age, as well as occupational position was associated with the largest number of significant differences. Next, sectors and working hours arrangements (daytime and shifts) were associated with a large number of significant odds ratios (OR). Moreover, type of contract and gender were associated with some significant odds ratios (see also Paper 2 for details).

With respect to the different industries, the service sector was used as a reference. Employees in the food industry are more likely to face limited negative encounters (OR = 1.81), to be sometimes bullied (OR = 2.53) and to be a victim (OR = 3.3). In the manufacturing industry, employees are almost twice as likely to be a victim of workplace bullying (OR = 1.93).

Using employees over the age of 55 as a reference when calculating the relative risks showed that the youngest employees (younger than 25 years of age) and the eldest employees (above 54 years of age) are least likely to face bullying, as they are underrepresented in most target groups. Respondents between 35 and 54 years of age have the highest risk of being a victim of bullying (35-44 : OR = 1.74 and 45-54: OR = 1.92). In addition, they are also more likely to experience limited negative encounters (OR = +/- 1.4). Between the ages of 25 and 34 (OR = 1.78) and between the ages of 35 and 44 (OR = 1.52), employees are more at risk of being subjected to work-related bullying.

To calculate the risk for various occupations, white-collar workers were used as the reference group. Blue-collar workers (OR = 2.1) and public servants (OR = 4.7) have an elevated risk of being victims of workplace bullying. Public servants also have the highest risk of sometimes being bullied (OR = 3.1). Managers and teachers in general appear not to differ from white-collar workers in relation to exposure to workplace bullying. In addition, nurses and social workers experience less bullying behaviour: limited negative work criticism (OR = 0.57) and work-related bullying (OR = 0.3)

Using employees who work during the day as a reference category shows that working shifts or having irregular working hours entails an elevated risk of exposure to workplace bullying:

limited negative encounters cluster (OR = 1.45), the sometimes bullied cluster (OR = 1.49) and the work-related bullying cluster (OR = 1.26).

Men are 1.33 times more likely to be exposed to work-related bullying, which means that men are at risk in relation to this particular type of workplace bullying.

Lastly, the likelihood of temporarily employed, compared to permanent employed respondents, to experience limited negative work encounters is significantly lower (OR = 0.6).

In sum, employees between the age of 35 and 54, public servants, blue-collar workers and employees in the food and manufacturing industries have a significantly elevated risk of being victims of workplace bullying. In contrast, employees younger than 25, employees with a temporary contract, teachers, nurses and assistant nurses are least at risk.

8.3 Identification of risk factors in relation to workplace bullying

8.3.1 Strenuous work is positively related to workplace bullying

In the third study (presented in the third paper in the present thesis), it was analysed whether having a stressful job is associated with an increased probability of being a target of severe workplace bullying. Using the Job Demand Control Model as a theoretical framework for occupational stress, we hypothesised that job demands and job control and their interplay may predict exposure to severe workplace bullying. In line with the risk control cycle, workplace bullying was conceived as the probability of being a target of severe bullying according to the latent class cluster approach. In order to explore whether there may be different thresholds

for experiencing workplace bullying, the likelihood of being severely bullied was examined in relation to the experienced level of demands and control at work. Demands and control were therefore categorised by means of an LC-approach. Preliminary calculations were performed in Latent Gold 4.5 (Vermunt & Magidson, 2009). These made it possible to distinguish the levels of exposure to demands and control employees report in a non-arbitrary manner (Notelaers, et al., 2007; Vanroelen, et al., 2009). Finally, the research hypotheses were put to the test through an analysis of variance in which the levels of experienced demands and control were perceived as independent variables and the probability of being severely bullied as a dependent variable.

The results showed that experiencing very high job demands and/or low job control accounted significantly for the probability of being classified as a target of severe bullying. Both main effects and the interaction effect were significantly associated with the likelihood of being classified as a target of severe bullying. The results also confirmed that high levels of control acted to some extent as a buffer against the negative effects that high demands have on the probability of having been exposed to severe bullying. To conclude, employees are likely to become victims of bullying when they experience that their jobs are unfavourable in terms of demands and lack of control.

Bearing in mind that approximately 3% of the employees in the sample are targets of severe workplace bullying, the results portrayed in Table 4 show that, when job demands increased, the probability of being a target of severe bullying increased from 0.02 to 0.08. In particular, experiencing very high demands functioned as a threshold for experiencing workplace bullying, as the likelihood of being severely bullied increased significantly when demands were very high. The probability of being a target of severe bullying also increased with decreasing control: from 0 to 0.11. Here, the likelihood increased significantly at a low level

of control. No further significant increase in the likelihood of being bullied was observed when employees exerted no control. Translated into the language of odds ratios, employees experiencing very high demands were almost three times more likely and those with a low level of control were up to four times more likely to be a target of severe bullying than employees in general.

The interaction term demonstrated that when job demands were high and job control was very low, the probability of being a target of severe bullying increased strongly. This probability decreases again, however, when control is high. Hence, control buffered to some extent the effect of high demands. Put differently, when control is low and demands are very high, employees are more likely to be a target of severe workplace bullying.

In line with the philosophy of the risk control approach of the present thesis, this significant interaction term reported in the third Paper is further investigated in order to assess in more detail the thresholds for victimisation with regard to the strain hypothesis that was the focus of the third Paper.

A Bonferonni pair-wise comparison procedure made it possible to compare the likelihood of being severely bullied among respondents who experience low strain with those who experience high strain. This is shown in Table 4, where the high strain groups according to the JDC model are printed in bold and underlined. The low strain groups are printed in both italics and bold.

Table 4. Probability of being a target of severe bullying by experienced level of job demands and control.

			Demands				Probability to be a target of severe bullying
			LOW		HIGH		
			Very low	Low	High	Very high	
Control	LOW	Very Low	0,06	0,09	**0,13**	**0,15**	0,11
		Low	0,02	0,02	**0,04**	**0,07**	0,04
	HIGH	High	***0,01***	***0,01***	0,01	0,02	0,01(b)
		Very High	***0,00***	***0,01***	0,00	0,00	0,00(b)
Probability to be a target of severe bullying			0,02(a)	0,03(a)	0,04(a)	0,06	0,03

Legend: (a) and (b) yields non significant differences between levels following the Bonferroni pairwise comparison procedure.

The Bonferonni pair-wise comparison test showed that, within the low strain groups (high – very high control to high – very high demands), the probability of being severely bullied did not differ significantly. Respondents in the low strain groups had a zero probability of being severely bullied.

However, the probability of 0.04 associated with the first cell in the high strain group (high demands – low control) is significantly higher than the probabilities associated with the low strain groups, again supporting the strain hypothesis. Experiencing high demands and low control was thus associated with a significant increase in the likelihood of being severely bullied. This yields a threshold for workplace bullying. Furthermore, it is noted that the

probability of being classified as a target of severe bullying is significantly higher – almost twice as high (7% versus 4%) – when control is low and demands are very high (compared with high). Hence, facing very high demands compared with high demands when reporting low control, seems to point to another threshold. Moreover, the probability of being a target of severe bullying that is associated with very low control and high demands, which is 0.13, is significantly higher than the above-reported 0.07. Hence, a new threshold emerges.

Finally, in the upper right corner, the probability of being a target of severe bullying is reported for employees who experience very high job demands and very low control. This probability of 0.15 is not significantly different from the probability of 0.13 that was associated with the low control and very high demands group. However, the probability of 0.15 is again significantly higher than the probability 0.04 and 0.07, indicating another threshold and again supporting the strain hypothesis.

8.3.2 Are there other risk factors than control and demands?

The aim of the fourth study was to investigate a wide range of job characteristics possibly acting as antecedents of bullying. In order to arrive at a comprehensive selection of work-related antecedents of workplace bullying, Warr's 'Vitamin model' was used as a starting point (Warr, 1987) to frame the research hypotheses. In sum, it was hypothesised that task autonomy, participation, skill utilisation, workload, cognitive demands, role conflicts, role ambiguity, job insecurity, changes in the job, and availability of feedback would be related to reports of exposure to workplace bullying.

The results are presented in the fourth Paper. Not all hypotheses were corroborated when tested simultaneously. Task autonomy was not significantly related to workplace bullying. The remaining hypotheses were however corroborated. Participation in decision making was

negatively related to bullying, as expected: A higher level of participation was associated with less bullying at work. Also, skill utilisation showed a negative and significant association with bullying. All job characteristics related to Warr's concept of externally generated goals were significant predictors of workplace bullying. Workload and cognitive demands both were positively associated with bullying. A higher level of workload and cognitive demanding work were related to a higher level of exposure to workplace bullying. Finally, also role conflicts were positively related to bullying. Four scales were used to operationalise Warr's conceptualisation of environmental clarity. All hypotheses related to this aspect were corroborated too. Role ambiguity, job insecurity, and changes in the job were all positively related to workplace bullying, as expected, suggesting that unclear tasks, insecurity about the future of the job and changes in the job are all antecedents of bullying at work. Finally, feedback showed the expected negative association. A higher level of task related feedback is associated with lower levels of exposure to workplace bullying.

A detailed look at the standardised regression coefficients in Paper 4 however also shows that the explanatory power of the job characteristics differed to a considerable extent. In most cases, these associations were rather small (e.g., betas below 0.10). Participation in decision making, skill utilisation and role ambiguity played a slightly more important role in explaining bullying at work. The only moderate regression coefficient, 0.23, was found for the relationship between role conflicts and bullying, suggesting that role conflicts play an important role in explaining bullying at work.

However, to ensure better alignment with the risk control cycle, odds ratios are presented in Table 5 after reanalysing the data from Paper 4. For this purpose, a binomial regression model was employed, where the dependent variable consisted of two categories: being classified as a victim of workplace bullying as compared to be classified as not bullied. Hence, an LC

analysis preceded the binomial regression analysis. Since the LC results are most similar to the two previous analyses that have been reported in the present thesis, they are not reported here.

Table 5. Which job characteristics explain the likelihood of being bullied? Results of a binomial regression analysis controlling for socio-demographical variables.

Models	Odds Ratios (Victim / not bullied)
Control variables	
Gender	1.16
Age	0.98
Educational level	0.89
Hours work / week	1.03
Job Characteristics	
Task autonomy	0.84
Participation	0.43***
Skill utilisation	0.73
Workload	1.28
Cognitive demands	1.20
Role conflicts	2.27***
Role ambiguity	1.61**
Job insecurity	1.34*
Changes in the job	1.22
Feedback	0.67*

ns: p > .001;

*: p=<.001; **: p =< .0001; *** p =< .00001

A reanalysis of the data presented in Paper 4 is portrayed in Table 5 which shows that not all hypotheses were corroborated. Workload, cognitive demands, autonomy, skill utilisation and changes in the task were not significantly related to being severely bullied as compared with

not being bullied. Moreover, the control variables were not significantly related to the outcome. Hence, gender, age, educational level and the number of hours worked per week, which, for the sake of convenience, were conceived as interval measures, did not explain the chance of being classified as a target of severe bullying as compared with being classified as not bullied. A detailed look at the ORs showed that the explanatory power of the job characteristics differed. Participation in decision-making and role conflicts were the most substantial predictors. Role ambiguity and feedback were the second most important predictors, while job insecurity showed the lowest OR.

It will be noted that there are some differences between the results of Paper 4 and Study 4. Some effects were not significant according to the binomial regression model, while some other effects were substantially different. Two reasons may explain this. First, the lower power as a result of discarding the clusters between 'not bullied' and 'targets of severe bullying' may cause some differences with respect to the significance of some effects. Secondly, the nature of the dependent variable is different. Secondly the focus on on targets of severe bullying as compared to be not bullied, to align better with the risk control approach of the present thesis, may be responsible for the aforementioned substantial differences.

9. Discussion

Research on interventions aimed at reducing workplace bullying is scarce so far (Salin, 2010; Vartia & Leka, 2010). However, workplace bullying is a serious threat to the health of both individuals and organisations, and it needs to be addressed on many levels and by many actors such as employers, trade unions and the government. The present thesis suggests following Cox et al. (1993; 2000), who proposed a risk control cycle to counteract stress at work when trying to prevent and manage workplace bullying. The risk control cycle is an iterative process consisting of several consecutive steps aimed at reducing both hazards and risks to a minimum. The first step, the identification of the hazard, is of the utmost importance, however. In order to successfully employ the control cycle, reliable and valid estimates of the nature of the phenomenon are needed, as are the identification of risk groups and its potential work-related antecedents.

Therefore, the overall aim of the present thesis was, firstly, to carefully identify the occupational hazard at hand, and, secondly, to explore risk factors and potential work-related antecedents in order to advance the use of the risk control cycle (Leka, Cox, et al., 2008) as a systematic way of counteracting workplace bullying.

The discussion is structured as follows. Firstly, the main findings of the thesis are summarised. Secondly, the identification of the hazard, risk groups and possible antecedent job characteristics will be discussed in depth from both a theoretical and a practical point of view. Finally, the strengths and the limitations of the present thesis will be addressed.
The four studies included in this thesis are also thoroughly discussed in each of the four papers of the thesis.

9.1 Summary of findings

In line with existing theories (Björkqvist, 1992; Einarsen, et al., 2010; Leymann, 1993), the use of a latent class cluster (LC) approach in study 1 (Paper 1) yielded a range of distinct target groups regarding the nature and frequency of exposure to bullying behaviours at work. While most respondents report little or no exposure to bullying, others systematically report frequent exposure to a wide range of such behaviours. A total of six distinct groups were identified that differ in terms of the frequency and nature of the reported bullying. One of these groups reported no exposure to bullying behaviour at all. In the *limited work criticism* cluster, employees reported only low exposure, primarily to some work-related negative acts. In the *limited negative encounters* cluster, in addition to limited exposure to work-related negative behaviour, employees also reported some (but still low) exposure to person-oriented negative acts. In the *sometimes bullied* cluster, employees were very likely to be occasionally subjected to a wide range of negative acts of both a work-related and person-oriented kind, as well as attempts at isolating them socially. In the *work-related bullying* cluster, employees experience monthly or even weekly exposure, primarily to work-related negative acts. The respondents in the *victims* cluster showed by far the highest probability of being exposed monthly or even weekly to all measured types of bullying behaviours.

All in all, according to the latent class approach the recurring nature of the bullying phenomenon is captured with six groups that differed with respect to the frequency and the type of the reported negative act. Therefore, the expectation that at least four groups exist is confirmed. In contrast, the view that there are two groups among employees when it comes to bullying, i.e. not bullied and bullied respondents, is disconfirmed. Those belonging to the 'victims' cluster showed strong impaired well-being, in line with much earlier research. However, groups with lower exposure also had an elevated risk of reporting lowered job

satisfaction and impaired well-being, showing that even low exposure to bullying behaviours poses a psychosocial hazard at work. The fact that both a Norwegian (Nielsen et al., 2009) and a UK study (Einarsen, et al., 2009) successfully replicated the current latent class cluster solution contributes to the robustness of the findings presented in the first two studies of the present thesis.

The investigation of risk factors and risk occupations in relation to being a target of workplace bullying in study 2 (Paper 2) yielded relatively few significant results, though some substantial ones. Age, occupation, gender, type of employment contract, work schedule and occupational sector were all significantly related to exposure to bullying at work. Employees between the ages of 35 and 54 (OR = 1.75 - 1.9), public servants (OR = 4.8), blue-collar workers (OR = 2.2), as well as employees working in the food industry (OR = 3.3) and in manufacturing industries (OR = 1.9), had a significantly elevated risk of being victims of severe workplace bullying.

Inspired by a work environment/stress tradition, the further study of risk factors focused on the strain hypothesis of the JDC-Model (Karasek, 1979), as well as the job characteristics in Warr's Vitamin model (1987), to explore possible antecedents of workplace bullying. The results of the third study (Paper 3) supported the JDC-Model's strain hypothesis with respect to targets of severe workplace bullying. Specifically, job demands were moderately related, whereas job control was strongly associated with the probability of being a target of severe bullying. The hypothesis that demands and control interact in creating stress was also supported, and detailed inspection of the findings in the present thesis yielded different thresholds for these factors regarding the risk of being a target of severe bullying. A re-analysis (study 4) of data used in Paper 4, focusing on the targets of severe bullying, underlined the importance of participatory decision-making, an element of Karasek's

conception of control, but added, in accordance with earlier studies, that role conflicts are also important to understand in relation to why workplace bullying prevails. Moreover, it was shown that when the environment is less clear (Warr, 1987, 1990) the probability of reports of exposure to severe bullying increases significantly.

9.2 Estimating targets using a latent class cluster approach

The better the hazard identification, the better the risk control cycle will be able to fulfil its mission: to reduce workplace bullying and its severe consequences in workplaces. As bullying is about recurring negative acts, measures of workplace bullying must provide the risk control cycle with trustworthy identification of its targets or victims defined in terms of the nature and frequency of the reported negative acts. Hence, valid and precise estimates of the prevalence of targets of bullying are a condition sine qua non.

9.2.1 Theoretical considerations

With a cross-sectional design, it is not really possible to capture the repeated nature of bullying. However, the Negative Acts Questionnaire asks the respondent to indicate how often he or she has experienced negative acts during the last six months. Thus, the frequency within a certain time frame may be further discerned as an approximation of the recurring nature of the phenomenon. As earlier research has tended to estimate bullying by very crude measures of the prevalence of targets versus non-targets, the present study employed a latent class cluster approach in order to provide a more balanced estimate of the problem that is more in line with the theoretical notion of bullying as a multi-faceted phenomenon and a gradually developing process. The most appropriate latent class cluster model yielded six separate groups in terms of the frequency and nature of reported negative acts. Three per cent were conceived as victims of workplace bullying, eight per cent were exposed to work-related bullying, while nine per cent of the investigated employees were classified as ‘sometimes

bullied‘. In addition, seventeen per cent experienced some limited negative encounters and twenty-eight percent faced what we labelled exposure to ‘limited work criticism’. A large minority of thirty-five percent were classified as ‘not bullied’.

The results from the LC approach indicate that combining all target clusters into one group of ‘bullied employees’ may overshadow the complexity of the phenomenon of bullying at work. Previous approaches to identifying targets of severe bullying using behavioural lists, such as the NAQ, defined a single cut-off point to separate targets from non-targets, thereby reducing workplace bullying to an either-or phenomenon. The most prominent cut-off criterion was formulated in the early 1990s by the Swedish pioneer Heinz Leymann. Leymann (1990a, 1990b) defined targets as those respondents who indicated that they had experienced at least one negative act during the last six months. Earlier reports employing the Leymann criterion found that less than half of the respondents who, according to the Leymann-criterion, should be seen as victims of bullying perceived themselves as such (Salin, 2001). The results presented in study 1 (Paper 1) showed that the construct validity of the latent class cluster solution is far better than the Leymann criterion employed in most studies so far. Whereas the total classification error (type I and type II error) varied between zero and 2.7%, it varies between 2% and 15.2% when the Leymann criterion is used to separate victims from non-victims, depending on the measure of self labelling used.

The predictive validity of the latent class clusters presented in the first paper of the present thesis also showed far higher negative z-values for potential outcomes, such as lack of pleasure at work and work-related distress, for the victims than for any other group of targets, including those identified using the Leymann criterion. In this respect, our results are close to the thresholds observed by Zapf and colleagues (1996) when employing data from self-identified victims groups. The experienced levels of distress and lack of pleasure at work

among those identified as victims by the Leymann criterion were more comparable to the levels reported among the 'sometimes bullied' and the 'work-related bullied' clusters in the first study 1 .

One of the clusters that needs to be more thoroughly scrutinised is the 'work-related bullying' cluster. The relationship between the latent class cluster solutions and several different self-labelling measures revealed that the proportion of respondents who consider themselves as *not* being bullied, is higher (approximately 75%) in the work-related bullying cluster than in both the 'sometimes bullied' (ranging from 35% to 55%) and the 'victims' clusters (ranging from 0 to 25%). The latent class analysis clearly indicated that the respondents in the 'work-related bullying' cluster report high exposure to bullying, although of a more work-related nature. These respondents reported only more job dissatisfaction than the respondents in the 'sometimes bullied cluster'. Consequently, the status of this cluster is debatable. One interpretation of the results is that exposure to strong and persistent work-related criticism leads to tension and a strong lack of well-being, although not necessarily to a perception of being bullied. Based on focus groups among employees in a technology company, Liefooghe & Davey (2003) argue that, in addition to severe interpersonal bullying, a kind of bullying exists where organisational practices, management prerogatives and the abuse of organisational power are perceived as highly demeaning, creating an unpleasant, inhumane and highly stressful environment. Hence, the behaviours involved may not necessarily be perceived as being aimed at the target as a person, but still create a difficult work situation, making life miserable for those exposed to them. Liefooghe and Davey also suggest the term 'institutionalized bullying' to cover such situations. In similar vein, D'Cruz & Noronha employed the term 'depersonalized' bullying (D'Cruz & Noronha, 2007).

Altogether the results of the first study may be interpreted as empirical support for the theory that bullying is a gradually escalating process during the course of which one is exposed to more and more frequent negative acts often triggered by a work-related conflict (Björkqvist, 1992; Einarsen, et al., 2003). In such a process, the absolute zero point would correspond with the 'not bullied' cluster. Respondents in this cluster hardly report any experience of workplace bullying. They are also highly satisfied with their jobs, do not worry about work, have a low recovery need and sleep well.

Some scholars (Björkqvist, 1992; Leymann, 1990b) conceive the first phase as indirect aggression where one is confronted with subtle, devious and difficult-to-confront negative behaviour that is even difficult to recognise for those involved. Leymann (1990a; 1996) also pinpointed that bullying behaviours are not uncommon in working life. The respondents in the 'limited work criticism' cluster were occasionally confronted with some negative work-related acts. Hence, their work role is criticised to some extent. One may argue that this is quite normal and something one must expect and tolerate. However, compared with the 'not bullied' respondents, being in this cluster is associated with lowered well-being and an increase in symptoms of stress. In the limited negative encounters cluster, some more negative acts are reported in addition to the aforementioned ones. Compared with the limited work criticism cluster, respondents in this cluster are occasionally subjected to some personal degrading negative acts as well. Again, one could argue that such incidents are within the normal boundaries of interpersonal conflicts at work. Yet again, the well being of respondents in this cluster is also lower, being quite similar to that of the respondents in the 'limited work criticism' cluster. Except for a significant but relatively small decrease in sleep quality, all other outcomes remain at the same level. The low level and the type of the reported negative acts inherent to both the limited work criticism and the limited negative encounters clusters

support the idea that bullying may start as indirect aggression that is difficult to pinpoint as such, yet with some negative implications for those exposed.

According to Leymann, bullying only happens when more direct negative acts occur that ridicule, humiliate and socially isolate the target. The latent class solution presented in the present thesis provides empirical support for such a bullying phase. Among the 'sometimes bullied', employees report many negative acts occurring now and then during the last six months. Hence, they are exposed to significantly more frequent negative acts than the previous clusters. Not only work-related negative acts or person-oriented negative acts occur more frequently, these employees also experience several acts that attempt to isolate them socially. Furthermore, the well-being of employees in the 'sometimes bullied' cluster decreases substantially. The 'sometimes bullied' cluster thus experiences a lack of well-being and elevated levels of stress and is clearly in need of some kind of intervention to prevent escalation and to manage the situation they are experiencing.

According to the results in study one, this level of bullying also seems to occur in a work-related context, in which one mainly experiences acts directed at one's work situation as already described above. Einarsen and colleagues (2010) have described such a work-related bullying cluster as a successor to the bullying phase, where the targets end up in a situation in which they have little say over their work situation and have little or no meaningful work to do. Such a situation is expected to be associated with lowered job satisfaction (De Witte, Vets, & Notelaers, 2010; Hackman & Oldham, 1976; Herzberg, Mausner, & Snyderman, 1993). Compared with the 'sometimes bullied' cluster, the higher frequency of reported work-related acts affected job satisfaction in particular.

The last group identified consists of respondents who are clearly exposed to severe bullying. They were labelled 'victims'. These respondents describe a situation that is typical for the end point as described in the theoretical models of Leymann and Bjørkqvist. According to these models, the targets are helpless and unable to cope with the situation, and a trauma develops as a consequence (Einarsen, et al., 2010). The victims cluster reports all types of negative acts at the highest frequency level. The frequency of reported behaviour increases dramatically compared with the previous clusters. The validation results showed that victims' scores on well-being and stress are strongly negative, as already commented on above. Compared to the previous clusters, the 'victims' experience no pleasure at work. They are worn out at the end of the working day, they worry a lot and have a low sleep quality. Especially the findings regarding worrying and sleep quality are reminiscent of previous empirical research that showed that victims score high on some of the dimensions that meet the DSM criteria of post traumatic stress disorder (Leymann & Gustafsson, 1996).

The latent class cluster solutions in this thesis (Paper 1 and Paper 2) demonstrate that, in addition to the repetitive nature of the acts, the type of reported negative acts is also an important feature qualifying negative behaviour as workplace bullying. This finding was not anticipated or hypothesised. The conceptual definitions of workplace bullying (cf. Table 1) do not distinguish different types of behaviour. However, the description of the process of bullying indicates that both the type and the frequency of negative acts matter (Einarsen, et al., 2010). Therefore, a measurement instrument aimed at operationalising the phenomenon sufficiently and adequately must cover various types of negative acts. Firstly, a behavioural list needs to measure subtle, devious and difficult-to-recognise negative behaviours (Björkqvist, et al., 1994). Secondly, it needs to measure acts that ridicule, humiliate and socially isolate a target (Leymann, 1990b). Finally, it needs to enable researchers to identify situations in which targets have little or no meaningful work to do (Einarsen, et al., 2010).

Previous research has demonstrated that the NAQ covers all these different domains (Einarsen, et al., 2009; Einarsen & Raknes, 1997).

The latent class cluster approach presented in the present thesis indicates that the NAQ also sufficiently and adequately operationalises workplace bullying. Firstly, there are enough items to distinguish targets of workplace bullying in a precise way. Secondly, the latent clusters support scholarly descriptions of the process of bullying in which the type of negative behaviour matters. Two examples will illustrate this. Compared with their precedent adjacent clusters, the 'sometimes bullied' and the 'victims' clusters, which report social isolation more frequently, also report a dramatic increase in all criterion variables. In addition, greater agreement with the self-labelling measures was noted among these clusters. The clear stress response in these clusters is reminiscent of social ostracism research in which experimentally induced social isolation was related to strong negative outcomes of different kinds (Williams, 2007). Therefore, it may contribute to the idea that social isolation is central to the concept of workplace bullying. As workplace bullying takes place in workplaces, work-related negative acts should matter as well. The 'limited-work criticism' and 'work-related bullying' clusters show that specific groups exist who report negative acts that are mainly about work.

However, the nature of the clusters is also the result of the items used to operationalise workplace bullying. Hence, a latent class approach to the LIPT (Leymann, 1990a), which is a much longer measurement instrument, will probably neither reveal the exact same number of clusters nor result in a relationship between indicators and clusters that is the same as presented here. In this respect, it is important to mention that the Belgian NAQ (Notelaers, et al., 2006) that was used throughout the thesis differs somewhat from the original version and its successor. Compared with the NAQ-R (Einarsen & Hoel, 2001; Einarsen, et al., 2009), which lists 22 items, the Belgian NAQ has fewer items, namely 16. Furthermore, the NAQ-R

has more items that tap into the domain of work-related negative behaviour and direct or physical aggression. Hence, it could be argued that some important domains for measuring workplace bullying are less well covered by the Belgian NAQ, which may result in different latent clusters than would be obtained using the NAQ-R. There are strong indications that this is not the case, however. Firstly, the NAQ-R measured in a representative sample of the Norwegian workforce (Nielsen, et al., 2009) appears to have a very similar probability structure as the one presented in this thesis. Consequently, the six identified clusters have the same meaning. Secondly, recent validation of the NAQ-R in a large and heterogeneous UK sample (Einarsen, et al., 2009) reported a seven latent cluster solution, including a violence cluster that was somewhat weakly related to workplace bullying, that also had six similar clusters to the ones reported in the first two papers of the present thesis. In particular, the relationship between the items and clusters, i.e. the probability structure, was very similar to the one portrayed in the first and the second papers. These replications of the latent clusters solution presented in the first and second paper of the present thesis underline that the Belgian NAQ is similar to the NAQ and the NAQ-R from a LC perspective. In addition these studies bears witness to the robustness of the latent class cluster technique as a valuable statistical tool for exploring the workplace bullying construct in more detail using the NAQ.

9.2.2 Practical implications

It may be concluded that the latent class cluster approach of the Negative Acts Questionnaire as shown in study 1 provides the necessary tool for empirically distinguishing different target clusters in terms of the frequency and nature of reported exposure to negative acts. The results thereby contribute to the first aim of the present thesis, which was to establish a trustworthy estimate for the risk control cycle. The nature of the identified clusters also has the potential required to adequately apply the hierarchy of prevention, i.e. primary, secondary and tertiary prevention, as pinpointed in the third step of the control cycle. Information on the

frequency of the reported behaviour may help interventionists to adequately design tailored intervention programmes against bullying. The results show that the first cluster hardly faces any systematic workplace bullying behaviour. The 'limited work criticism' and the 'limited negative encounters' clusters, in which both the type and intensity of the reported negative acts differ, only face low exposure to workplace bullying behaviour. Since these employees are not systematically exposed, information about how bullying affects people and the social climate at work, as well as the communication of a policy against workplace bullying may be sufficient to prevent escalation. In addition, improving conflict management skills among managers may be a fruitful method of targeting workers in these clusters. Improving the quality of leadership and the social climate among peers in the organisation can also be adequate interventions in relation to these clusters.

However, informing employees may no longer be sufficient for respondents who are sometimes bullied, as they report being sometimes exposed to different types of negative acts, and further escalation must be prevented. Implementing fair complaint procedures may be an important and necessary intervention for this group of employees (see also Hoel and Einarsen, 2010). For these respondents, analysing the causes of bullying may also be necessary in order to counteract further workplace bullying. In some cases, individual counselling may be needed to deal with the problem. Since work-related bullied respondents are characterised by high and systematic exposure to work-related negative acts, a thorough analysis of the working environment may contribute to an explanation of their bullying experience.

For the victims, informing and analysing the working environment may be too little, too late. Therefore, these individuals need assistance in order to be able to deal with their experience of being victims of workplace bullying. Rehabilitation after fair consideration of their case may also be a necessary intervention for those in the latter cluster. Looking at their impaired

health and well-being, medical and psychological treatment may also be needed.

9.3 Risk groups in relation to bullying

The primary aim of study 2 was to explore risk groups in relation to bullying in order to inform policy-makers at the national and organisational level about possible avenues for counteracting workplace bullying.

9.3.1 Theoretical considerations

The investigation of risk factors in relation to being a target of workplace bullying yielded only few significant results. Hence, bullying seems to thrive in most settings and to affect most groups of employees. With respect to age, previous research underlined that young employees are among the risk groups in relation to workplace bullying. To explain this, the idea was put forward that workplace bullying among young employees is a consequence of a 'baptismal process' (Archer, 1999; Brodsky, 1976; Einarsen, et al., 2008) in which 'inexperienced' workers are put to the test before being integrated into the work group. For the youngest employees (in comparison to the oldest), the odds ratios in the second Paper were most often equal or smaller than 1, thus indicating a decreased risk. However, the somewhat elevated odds ratio connected with limited work criticism may point to the fact that younger employees are still in a learning process, becoming acquainted with ordinary working procedures and expectations. Hence, the data did not support the idea that young employees are more at risk, quite the contrary. In fact, it was not the younger employees who were at higher risk to of being bullied, but employees between the ages of 25 and 44. In the research literature no special attention has been devoted to this group. The finding may be explained as follows. Between the ages of 25 and 44, employees are in the middle of their 'active' working lives. In this age group, careers are being planned, families are being founded and separated, and houses are being bought and sold. At the same time, working life also

becomes somewhat more demanding, whereas some resources, such as social support and skill utilisation, may decrease. This may relate to the higher need for recovery that has been observed in this age groups (Van den Broeck, Notelaers, & De Witte, 2007; Vets, Notelaers, & De Witte, 2009), which may explain the elevated risk of being bullied. The aforementioned job characteristics have at least been empirically related to the occurrence of workplace bullying (cf. Table 2). The two life domains together may thus result in a depletion of energy and in more stress, making employees more vulnerable and possibly somewhat easy targets(Baillien, De Cuyper, et al., 2010). This may be aggravated when the two domains come into conflict (Demerouti & Geurts, 2004; Frone, Yardley, & Markel, 1997; Geurts, Kompier, Roxburgh, & Houtman, 2003). Such a conflict may lead to negative spill-over effects that are known to lead to stress, ill-health and lack of well-being (Demerouti, Bakker, & Bulters, 2004; Van den Broeck, De Cuyper, De Witte, & Van Steenkiste, 2010), possibly making employees even more vulnerable and easy to target.

The results in relation to occupational position show that public servants and blue-collar workers have a substantially higher risk of being targets of severe bullying. However, the data did not provide support for the idea that bullying is primarily a blue-collar phenomenon (Einarsen & Skogstad, 1996), as public servants were twice as likely to be at risk. Furthermore, a comparison of the odds ratio for blue-collar workers and public servants in relation to other types of bullying showed that blue collar workers were significantly less likely to face limited work criticism and work-related bullying, while public servants were more likely to be occasionally bullied.

Previous research had already indicated that employees in public services are more prone to be bullied (Leymann & Gustafsson, 1996; Zapf, 1999a). The odds ratio approximating five supports these earlier findings. An explanation of this higher relative risk may be found in job

and organisational characteristics in the public sector. Firstly, previous research has shown that bullying occurs more often in cultures that are heavily dependent on the preservation of an existing hierarchy (Archer, 1999). Secondly, representative research in Flanders has demonstrated that the public administration is characterised by permanent employment contracts and favourable social benefits such as good pensions (Bourdeaud'hui, Janssens, & Vanderhaeghe, 2004). Thirdly, research mapping the job characteristics of public servants in Belgium (Notelaers, Hoedemakers, De Witte, & Pepermans, 2005) identified elevated levels for possible antecedents of bullying such as role conflicts (Einarsen, et al., 1994; Hauge, et al., 2007) and non-supportive leadership (Hauge, et al., 2007; Aasland, Skogstad, Notelaers, Nielsen, & Einarsen, 2009). Hence, it could be argued that public servants are trapped in a golden cage, a term public servants often refer to when describing their occupational situation. In such a situation, long-term conflicts (Zapf & Gross, 2001) and a lack of internal and external opportunities for mobility that could have allowed the parties involved to cope with this difficult situation may be fertile soil for workplace bullying.

A last finding that should be highlighted is that temporary employment is not associated with a higher risk of bullying than permanent employment. In fact, temporary employees are even less likely to experience limited negative work encounters. This is an important finding because it does not provide empirical support for the hypothesis that temporary employees are particularly vulnerable to workplace bullying as they may fear being dismissed or not having their contract renewed if they stand up and defend themselves in interpersonal conflicts (Baron & Neuman, 1996). It is possible that 'volition', a key concept from psychological contract literature (Rousseau, 1998), should be added to the equation in order to understand the current findings. Whether people have voluntarily chosen to be a temporary employee may moderate the relationship between type of contract and workplace bullying. In addition, perceived employability (De Cuyper, Baillien, & De Witte, 2009) may act as a third variable.

If temporary employees perceive employability opportunities elsewhere, they may quit the organisation already during the early stages of bullying. The stepping stone hypothesis and the entrapment hypothesis, which may figure as an explanation for the current finding, are also closely related to the literature on temporary work. According to the stepping stone hypothesis, temporary workers may see their job as a 'rehearsal' for the possibility of achieving a better and more suitable job (De Cuyper, Notelaers, & De Witte, 2009). As a result, temporary employed people may seek a more beneficial working environment elsewhere before becoming victims. Finally, the entrapment hypothesis stipulates that permanent employees in particular are not inclined to move to other jobs when working conditions deteriorate, since they have fixed pay and a permanent contract (De Cuyper, Notelaers, et al., 2009). Hence, this may explain why permanently employed people are more likely to report limited negative encounters.

9.3.2 Practical implications

The detection of risk groups may facilitate the application of the prevention hierarchy because it reveals which groups are more likely to be in need of a particular type, or a mix of types, of prevention measure(s). Moreover, it may help in the allocation of resources to tackle the problem of workplace bullying at the very start of the risk control approach. This will be illustrated in the rest of this section.

Public servants may serve as example to underscore the importance of differentiating resources and efforts to tackle workplace bullying at the sector level. The odds ratios showed that public servants were almost five times more likely to face severe bullying. This may imply that the public administration that employs public servants should consider allocating a great deal of the available resources to tertiary prevention when planning to start controlling workplace bullying. Since public servants were also three times more likely to be sometimes

bullied, the public administration could also consider reserving some resources for primary and secondary prevention for launching and maintaining campaigns aimed at employees getting along with their co-workers.

The prevalence of workplace bullying across occupations such as blue-collar workers, white-collar workers and managers may serve as a second example to illustrate that the identification of risk groups may help in allocating resources for intervention measures at company level. Based upon the findings of the second paper, employers may know that their blue-collar workers are twice as likely to be severely bullied. This calls for a strong allocation of resources for tertiary intervention. As they were least likely to be subject to 'work-related bullying', fewer resources can be spent on addressing that particular issue. However, when it comes to white-collar staff and the managers in an organisation, far more resources can be allocated to analysing work-related bullying in more detail, as the phenomenon is most prevalent among these occupational groups. However, a large proportion of the resources for interventions should go to tertiary intervention, since being severely bullied is a serious threat to health. Hence, the current findings may help in the planning of the risk control cycle, i.e. in the allocation of resources. When the risk control cycle is started, the establishment of risk groups helps to precisely identify the risks and show where the specific measures for counteracting workplace bullying may be deployed.

Altogether, it may be clear that policy-makers may benefit from studying the problem of workplace bullying in more detail. Identifying the risk groups at the workforce level, the level of organisational stratification and the individual level may help counsellors to develop interventions to counteract the different types or forms of workplace bullying. Identifying the type of and exposure to bullying and the risk groups is only a start, however. Once the hazard is identified, various explanatory pathways (Baillien, et al., 2009; Einarsen, et al., 2003; Zapf,

1999b) should be explored as well in order to systematically counteract this occupational hazard. The basic assumption of the risk control cycle – that hazards emanate primarily from the work itself – led to the thorough investigation of which factors or conditions in the working environment, i.e. job characteristics, may be associated with workplace bullying.

9.4 Risk factors in relation to workplace bullying

9.4.1 Theorectical considerations

Hazard identification cannot stop with the estimation of exposure levels and risk groups. At least within an organisational context, it needs to be supplemented by an exploration of the reasons why the hazard arose to begin with. As reported in Papers 3 and 4, Studies 3 and 4 were aligned with a work environmental stress approach to shed some light on the conditions in which exposure to workplace bullying may thrive. In particular, it was investigated which job characteristics are associated with exposure to workplace bullying. Following the results of the latent class cluster approaches for the NAQ, the likelihood of being a target of severe workplace bullying was conceived as a behavioural stress response to a stressful work situation (Baillien, Rodríguez-Muñoz, et al., 2010). There are several reasons why such a behavioural response may occur. For example, employees confronted with high demands and low control may end up as targets through a process of retaliation for voicing their concerns or protesting (cf. fustration-aggression hypothesis, Berkowitz, 1989). Stressed employees may end up as victims because they face hostile reactions from others for violating the group's social or production norms (cf. Felson & Tedeschi, 1993a). Being under stress may also lead to depletion of energy (Bakker & Demerouti, 2007), making employees somewhat easy targets, as their ability to cope or counterattack is weakened.

The results of study 3 supported the JDC-Model's strain hypothesis with respect to targets of

severe workplace bullying: job demands and job control explained being a target of severe bullying. The study showed that the probability of being a target of severe bullying was very strongly related to lack of job control, much more so than to job demands. This finding underlines earlier assumptions that lack of resources may force a potential target into a position in which it is difficult for him or her to defend him/herself against negative acts at work, a core element in a substantial minority of the definitions of workplace bullying presented in Table 1.

The interaction hypothesis in study 3 was also supported. Hence, employees reporting high strain jobs (i.e. high job demands and low job control) were more likely to be targets of severe bullying than employees reporting low strain jobs. The different conditions in which the likelihood of being bullied prevailed were in dept explored by investigating the interaction term more extensive than in the submitted Paper 3. When job demands are high and control is low, employers should be alert, since the likelihood of being exposed to severe bullying increases. When demands are very high and control is low, employers should be cautious, as the likelihood of being severely bullied doubles. Finally, employers should be very cautious when the work becomes very demanding and the 'elbow room' available to employees becomes very small; that is when almost no job control exists. In this situation, employees were up to five times more likely to be a target of severe bullying.

In line with study 3, the re-analysis of the data from Paper 4 in study 4 demonstrated that lack of participation emerged as a relatively strong predictor of being a target of severe bullying (as compared with being 'not bullied'). In addition, role conflicts were a strong predictor of exposure to severe bullying. This is in accordance with recent empirical findings in which it was found that role conflicts were the strongest predictor of workplace bullying (Bowling & Beehr, 2006; Hauge, et al., 2007; Neyens, et al., 2007).

Role conflicts are a special form of conflict that may arise when one is confronted with two different and incompatible, or even contradictory, instructions, tasks or roles at the same time. Consequently, conflict theory may also account for the finding that role conflicts are very important to understanding exposure to severe bullying. Following Glasl's (1994) model of conflict escalation, bullying may indicate a conflict of a special kind, i.e. a particularly escalated and unresolved conflict (van de Vliert, 2010; Zapf & Einarsen, 2005): conflicts that are then not resolved due to deficient leadership (Leymann, 1996), lack of conflict management skills (Zapf, 1999) or due to inadequate conflict management (Baillien & De Witte, 2009a; Baillien, Notelaers, De Witte, & Matthiesen, in press). These conflicts may then escalate into workplace bullying because they trigger interpersonal aggression. Studies show that interpersonal conflicts contribute to the occurrence of workplace bullying (Baillien & De Witte, 2009a; Gross, 2004), and in the workplace it is likely that these conflicts may result from experiencing role conflicts. Following the demand resource model (Bakker & Demerouti, 2007), conflicts may also lead to depletion of energy for some of the conflicting parties, which in itself makes them somewhat more vulnerable, and possibly easy targets.

Study 4 also underlined the importance of environmental clarity, a concept Warr introduced in 1987, to understand the conditions under which being a target of workplace bullying occurs. In general, lack of environmental clarity creates strain with respect to rights and privileges among employees (Caplan, Cobb, & French, 1975; Kahn, et al., 1964), which in itself may lead to experiencing severe bullying (Leymann, 1996). In addition, continuous uncertainty may create conflicts that could translate into workplace bullying (Zapf, 1999b). In line with this reasoning, role ambiguity was significantly related to workplace bullying when other job characteristics were controlled for. Such reasoning may also explain why task-related feedback proved to be important in relation to understanding the likelihood of being severely

bullied. Task-related feedback refers to the provision of information relevant to adjust behaviour in order to achieve work goals and may be necessary to obtain clarity. Lacking or insufficient feedback contributes to uncertainty and stress and may give rise to conflicts that lead to reports of bullying. However, negative feedback may, in itself, be perceived as bullying if it continues repeatedly over a prolonged period of time and especially so if experienced as unfair. Finally, the above reasoning may also contribute to understanding why job insecurity, which is defined as overall concern about the continued existence of the job in the future (De Witte, 1999), was a significant predictor of workplace bullying. When the environment becomes less predictable and somewhat unsure, as in the case of high job insecurity, employees may experience that others cross the thresholds of ethically and socially acceptable behaviour and therefore report more exposure to bullying. Von Holzen-Buesh, Zapf and Schallberger (1998) argue that employees are more tolerant of workplace bullying when they fear losing their jobs. Job insecurity may also push employees to the edge, leading to the use of inappropriate coping strategies that 'provoke' retaliatory responses.

Taken together, these findings suggest that role ambiguity, job insecurity and receiving insufficient task-related feedback support the view that bullying thrives when employees perceive their job, work situation and work objectives as unpredictable and unclear (Hoel, et al., 2002).

Study 4 also showed that some of the hypothesised relationships between bullying and job characteristics were absent. Task autonomy, skill utilisation, workload, cognitive demands, and changes in the job were not significantly associated with being classified as a victim of workplace bullying as compared to be classified in the 'not bullied' cluster. Since task autonomy and skill utilisation were not significant predictors in the last paper, it may be argued that the findings contradict the findings of the third paper, where control was found to

be very important to understanding the probability of being a victim of workplace bullying. However, this may be due to the fact that the two papers modelled job characteristics in different ways. Since Karasek (1979) conceived the three job characteristics as one dimension, the third study modelled control as a type of conglomerate variable, whereas the fourth study modelled the three constructs separately, thereby following Warr's categorisation of job characteristics (1987, 2007). Another reason for these findings may be found in the multivariate design. The correlation matrix presented in the last paper of the present thesis shows that participation, task autonomy and skill utilisation are very highly correlated. Such high correlations may cause one of these variables to be a significant predictor, while causing the others to be insignificant. Hence, multicollinearity may be a troubling factor here. In order to deal with the possibility that multicollinearity may be responsible for inaccurate estimates of the parameters in the regression model, a binomial regression model is modelled in which control is treated as a conglomerate variable. The results show that control is indeed significantly related to the dichotomous outcome variable. However the strength of the effect decreases somewhat (OR = 0.64). The other effects remained very similar to the ones presented earlier.

Multicollinearity may probably not account for the non-significant relations between workplace bullying and workload, cognitive demands and changes in the job. However, there may be an alternative explanation for these findings. The correlation matrix also showed that various non-significant effects were significantly associated with significant predictors, especially with role conflicts. Since role stress theory (Beehr, 1995; French & Caplan, 1972; Kahn, et al., 1964) states that role stressors play a distinctive part in experiencing stress, it could be that role conflict mediates the relationship between these job characteristics and workplace bullying (Baillien, et al., 2009).

Finally, attribution theory (Baron, 1990) may partially explain the absence of some of these relationships. Workload and cognitive demands may be viewed as 'impersonal' job characteristics that do not tap into the social work environment as do role conflicts, lack of feedback and role ambiguity. They are therefore less attributable to other persons, hence, less likely to be associated with reports of exposure to bullying.

9.4.2 Practical implications

Investigating possible antecedents of workplace bullying is the last phase in the first step of the risk control cycle. Inspired by work-environmental stress models, Studies 3 and 4 identified those job characteristics that are associated with a significant increase in the likelihood of being a target of severe bullying. The findings of this thesis show that various job characteristics are significantly related to workplace bullying. Whereas previous studies have highlighted the importance of conflict management strategies and leadership styles in preventing workplace bullying (Baillien, et al., in press; Hauge, et al., 2007; Skogstad, Einarsen, Torsheim, Aasland, & Hetland, 2007), the present thesis demonstrates that it is also important to create or (re)design jobs in such a way that they are characterised more by 'non-bullying-provoking' job characteristics. Study 3 highlighted the importance of control to the ability to cope with job demands. Study 4 added that, in circumstances where role conflicts and lack of work environmental clarity prevail, employers should be cautious because this is associated with a substantial increase in the likelihood of reporting exposure to severe bullying. If employees are insecure about their jobs, they may be more vulnerable to workplace bullying. In addition, maladaptive coping strategies may provoke retaliation. When the job requirements are not clearly formulated or when they include possibly conflicting demands, role boundaries may be crossed (Leymann, 1996), which may lead to conflicts. These conflicts may then escalate into cases of workplace bullying (Einarsen et al., 1994). Since changes in jobs and organisations seem to be an inherent part of the modern

economy, how one may effectively deal with a lack of 'environmental clarity' becomes crucial.

When using surveys in the risk control cycle, these findings suggest that the psychosocial work environment should be scanned for demands, control, role conflicts and environmental clarity. These job characteristics may provide valuable clues for the design of interventions to control workplace bullying.

9.5 Strengths and Limitations

A significant strength of the empirical studies in this thesis is that they are based on large and heterogeneous samples, which increases the robustness of the findings (Tabachnick & Fidell, 2007). However, large and heterogeneous samples are not representative samples. Hence, strictly speaking, generalisations cannot be made to the working population as a whole.

Another strength of the study is the relatively high response rate. The average response rate of the data in this thesis approximates 65%. This is quite high compared with surveys on workplace phenomena in general (cf. Baruch & Holtom, 2008).

Another significant strength of the present thesis is its multivariate approach to investigate the various research hypotheses. In contrast to the vast majority of earlier studies about workplace bullying, the effects of different independent variables were estimated simultaneously. As a result, the reported odds ratios in this thesis were more accurate, as the effect of other independent variables was controlled for. The effect of controlling for other dependent variables should not be underestimated. This is shown by the thorough examination of the odds ratios from the multinomial regression analysis and the distribution

of the bullying clusters over the socio-demographical variables reported in the second paper. Bivariate analysis may have led to the wrong conclusions with respect to the risk groups of workplace bullying.

Another important strength of the present thesis is its categorical data approach to the NAQ and the phenomenon of workplace bullying. Firstly, the NAQ provides respondents with the following response options: 'never', 'now and then', 'monthly' and 'weekly or more often'. Traditionally, these categories have often been treated as an interval measure, which can then be modelled using traditional factor-analytic approaches. However, such approaches rely heavily on the assumption of normality. Frequency reports of the NAQ show that this assumption is largely violated (for example: Einarsen & Raknes, 1997). This may be expected with such a phenomenon. However, the violation may be highly problematic in relation to the obtained estimates (Eid, Langeheine, & Diener, 2003). In addition, the assumption that the response set is an interval measure may be questioned as well: may it really be assumed that the responses are equidistant? The ramifications of violating these assumptions may be severe (Eid, et al., 2003). For example, the continuum that is obtained using traditional factor models may be obscured because it does not provide unique scores on an interval scale. As a result, one cannot assume that all items can be ordered on a continuum in a way that it is obligatory for all individuals (Eid, et al., 2003). Secondly, the assumption that the phenomenon itself is a continuum ranging from no exposure to very high exposure to bullying behaviours may not fit the escalatory process of bullying as it has been described by scholars (Björkqvist, et al., 1994; Einarsen, et al., 2010).

The studies and most of the papers are embedded in a categorical data approach. In the first paper, where a measurement model of workplace bullying was estimated using latent class clustering (Vermunt, 2001, 2004; Vermunt & Magidson, 2002), the negative acts were

conceived as categorical indicators, and the resulting latent variable was a discrete latent variable consisting of clusters or groups that differ from each other. The second paper estimated by use of a multinomial regression model the odds of being classified in a certain target group compared to being classified as not being bullied and this for each of the response categories of the independent variables. In the third paper, the outcome variable was the probability of being a target of severe workplace bullying after the different target groups were estimated with latent class modelling. In addition, both demands and control were categorised to examine potential thresholds for being a target of severe bullying, using the same latent class principles. In line with the dominant approach in bullying research a sum score of the items of the NAQ was used in the fourth paper. However to align better with the risk control approach of the present thesis the hypotheses formulated in the fourth paper were additionally analysed from a categorical data perspective. As a result of the reanalysis of the data of the fourth paper, the last study conceived workplace bullying as being classified as a target of severe bullying compared with being classified as not bullied.

It may be argued that the categorical data approach could have been more prominent in the two last studies of the present thesis. However, as theoretical reasoning about the relationships between job characteristics and particular phases of bullying does not exist, it was difficult to formulate specific hypotheses to explain why and how a possible antecedent should be related to a particular target cluster. As a result of the definition of workplace bullying that in essence conceives bullying from a targets perspective as experiencing recurring negative acts, the two last studies focussed on being classified as a target of severe bullying. This way the studies tried to avoid that the test of the different hypothesis, in practice, aligned more with exposure to negative acts than with exposure to workplace bullying. In principle, if the responses would have been treated as interval measures, the characteristics of the distribution, i.e. a mean of 1.32 approximating the ‘never’ response

category and a relative low standard deviation of 0.38, would have displayed that recurring negative enacting, the core definitional component of workplace bullying, may not have been operationalised adequately. This line of reasoning brought me to reanalyse the data from paper 4 and may partly explain the reported differences.

Despite the strengths of the studies, the present thesis is not without limitations. The present thesis relied exclusively on a cross-sectional design. Such a design does not allow causation to be inferred. Consequently, this thesis cannot determine whether job characteristics cause bullying or whether bullying causes the unfavourable experience of job characteristics. To date, only one study using a longitudinal design has shown support for the argument that job characteristics lead to reports of exposure to bullying (Baillien, De Cuyper, et al., 2010). In contrast, in a large representative sample of the Norwegian working population, Hauge and colleagues (2010b) found that reports of exposure to bullying lead to negative reports of job stressors. Clearly, the results from Studies 3 and 4 must be handled with care.

However, the cross-sectional design does not hamper the findings of Studies 1 and 2. Estimating a typology of workplace bullying at a certain point in time, in a cross-section, does not interfere with the detection of heterogeneity in a population. Current estimates of the latent class clusters are also robust. The latter is underlined by the converging findings of latent class approaches to the NAQ-R in both Norway and the UK (Einarsen, et al., 2009; Nielsen, et al., 2009). However, the absence of a longitudinal design limits detection of the processes of bullying. Although workplace bullying is defined as repeated and persistent negative behaviour, its repetitive nature was only analysed from a static perspective. The categorical data perspective on the measurement of items of the NAQ used in the present thesis enabled ‘never’, ‘now and then’, ‘monthly’ and ‘weekly or more often’ to be modelled as response categories expressing the frequency and thereby the repetitive nature of the

phenomenon. However, a longitudinal design is needed in order to discover the dynamic process by studying in detail transitions between the different clusters.

Even though, a Norwegian and a UK study successfully replicated the current latent class cluster solution, thereby contributing to the robustness of the findings presented in the first two studies of the present thesis, it does not imply that the cross cultural validity is established. The seventh cluster i.e. the violence cluster in the UK study may serve here as an example. However, as a result of specific different cultural issues at the level of the organisation and / or the level of regions a latent class cluster approach may even produce a diverging probabilistic relationship between indicators and latent variable from the one presented in the present thesis. For example, in some organisational settings such as the Norwegian offshore industry a cluster of targets of severe bullying may not appear at all because only the mentally fittest are selected to work on the platforms or because prioritising safety may imply that even low frequent negative behaviour cannot be tolerated. In some cultures, it may be possible that besides the current identified targets of severe bullying an additional cluster of even more exposed targets may co-exist if some negative behaviour is more common. This does not imply that the latent class cluster approach would not be an appropriate tool to distinguish in a more non-arbitrary way different target groups except in samples that are too small to be analysed in such a way. It does imply however that the robustness of the current findings should be explored further.

A further limitation of the studies in this thesis is that they all rely on single-source, self-reported data. Hence, there is a possibility of common method bias. The categorical data approach and the careful use of targets of severe bullying, may not overcome this. Hence, some of the observed variation in the last two studies may be attributable to the measurement method rather than to true variation in the latent constructs (Podsakoff, MacKenzie, Lee, &

Podsakoff, 2003). Relying solely on self-report methodology may be problematic, and especially so with sensitive psychosocial hazards such as workplace bullying. Therefore, triangulation with other measurement methods is advisable. Cowie and colleagues (2002) mention a few, such as observational methods, peer nomination methods and multimodal approaches to measuring workplace bullying. However, it should be noted that some of these data collection procedures may entail ethical challenges (Cowie, et al., 2002). With respect to the measurement of job characteristics, these approaches also exist but are rarely used. Company records (Voorde, van de Paauwe, & van Veldhoven, 2010) and medical data (Hansen, et al., 2010; Hansen, et al., 2006) are valuable to achieve triangulation. However, some of these methods may be difficult to employ, as organisations' willingness to grant access to strategic sensitive data will be low. Some of the methods mentioned also require a lot of fieldwork, which may hamper researchers in collecting large and heterogeneous samples that would enhance the external validity of the findings. Nevertheless, such alternative methods are necessary in order to strengthen the internal validity of bullying research.

Another limitation of the present thesis is that all hypotheses were tested at the individual level alone. Hence, no multilevel design was used. Firstly, this may imply that the effects presented in this thesis may be somewhat overestimated, as the hierarchical structure of the data (e.g. employees are nested within organisations) was not taken into account. Earlier investigations of the data in study 2 revealed, however, that both a two and a three-level design accounted for less than 5% of the variance in exposure to workplace bullying (Adiele, Notelaers, De Witte, & Einarsen, 2007). These results provided a good reason to test the hypothesis at the individual level of analysis. Secondly, this means that valuable hypotheses resulting taking into account that different levels of analysis exist in working life were neither formulated nor examined. However, bullying is not simply a private transaction between a

target and a perpetrator; it is a dynamic socio-psychological phenomenon in which no level should be excluded. The need for such an avenue of research is in strong contrast with the number of empirical research publications that takes different levels of analysis into consideration when studying antecedents and consequences of bullying. Nevertheless, the publication of such research is pending. Hauge and colleagues (submitted) demonstrate that unconstructive leadership and role conflicts at the departmental level explained both organisational and individual accounts of workplace bullying.

10. Conclusion

Workplace bullying has detrimental effects on the health of both individuals and organisations. Therefore, it is of the utmost importance that this occupational hazard is managed properly. The present thesis aimed to contribute to the first step of a risk control management system. The present thesis focussed on the identification of the hazard, the exploration of working populations at risk and the investigation of possible work-related factors as the feasibility of the risk control cycle depends entirely upon this first step.

The identification of target groups of workplace bullying showed that bullying can not be reduced to an either-or phenomenon as five distinctive target groups exist following a latent class cluster approach to the NAQ. Therefore the risk to be bullied with respect to different occupational groups in the work environment must be inspected rigorously. However, as being a target of workplace bullying is most often defined as experiencing recurrent negative behaviours, research employing the risk control approach may focus on the victims cluster to establish risk groups and risk factors for workplace bullying.

In this vein, the result showed that employees between the ages of 35 and 54, public servants, blue-collar workers, as well as employees working in the food industry and in manufacturing industries, had a significantly elevated risk of being targets of severe workplace bullying.

Inspired by a work environment/stress tradition, the further study of risk factors focused on the strain hypothesis of the JDC-Model (Karasek, 1979), as well as the job characteristics in Warr's Vitamin model (1987), to explore possible antecedents of workplace bullying. In sum, the result of the studies in the present thesis show that being a severe target of bullying is

associated with conditions characterised by high demands, low control, role conflicts and lack of environmental clarity.

These results suggest that a risk control cycle approach to manage workplace bullying must carefully map the repeated nature of the phenomenon and screen for the aforementioned job characteristics to design interventions.

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[i] Previous research has shown that both versions of the NAQ were equivalent among Dutch and French-speaking respondents (Notelaers, Vermunt, De Witte, Einarsen, & van Veldhoven, 2005)